



VOICE YOUR CHOICE

TEACHER'S NOTES

KEY STAGE 3 INTRODUCTION

Voice Your Choice! will engage all students in finding out about the critical role plants and animals play in their habitats and in the global trade.

They will examine the potential threats facing these species, such as climate change, and explore what they can do to conserve them.

A scenario is set and students are divided into a number of groups to investigate the reasons for saving a particular plant or animal. Each group puts their case to the class and the votes are cast...

This activity is for use at Key Stage 3. Voice Your Choice! could be run over two lessons: the first where the students find out information and the second where they present their case. A visit to a botanic garden would enrich this activity as students could view the species for which they made their case.

LEARNING OBJECTIVES

FOR STUDENTS TO UNDERSTAND:

- that species are interconnected
- that each species has a value and that it is difficult to value one more than another
- some of the threats facing plants and animals
- that they can do something about the threats facing plants and animals

FOR STUDENTS TO DEVELOP THEIR SKILLS IN:

- investigating, collecting and presenting evidence
- working together in groups

LINKS TO THE NATIONAL CURRICULUM

Voice Your Choice! is linked to the **Science and Geography National Curriculum**, providing plenty of opportunity for students to acquire personal, learning and thinking skills (PLTS).*

Voice Your Choice! also offers an opportunity for teachers to include cross-curriculum dimensions in their teaching, in particular, '**Creativity and critical thinking**' and '**Global dimension and sustainable development**'.

*Please see the 'National Curriculum links' document for the precise links.

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TEACHER'S NOTES

RESOURCES

PROVIDED

- **Notes for teachers**
On the species plus website addresses for further information
- **Framework**
For students to find out further information
- **Downloadable resources**
Stickers for badges, ballot box, voting slips

NEEDED

- Books, atlases and computers for research

KEY STAGE 3 TEACHING ACTIVITY

1

THE SCENARIO

Provide the students with the following scenario:

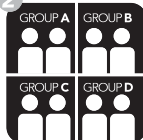
“

Governments have agreed to fund the conservation of one plant or animal species. You work for a conservation organisation and believe that your species is the one that must be saved.

Your organisation has to make its case for your species to win the vital vote.

”

2



Divide the class into 4 groups and give each group a species to defend.

Provide them with information cards about the species and a framework for investigation.

3



Provide the class with time to research and build their case.

Students could develop their own promotional and lobbying materials to persuade people to vote for them.

4



The groups present their case.

This could be to their own class, another class or to an assembly.

5



Voting slips are handed out and the ballot is cast.

If the groups present to their own class, individuals are not allowed to vote for their own species.

6



The result of the ballot is announced and discussed by everyone.

KEY STAGE 3 SCENARIO

The following information provides an overview of the importance of each group of species and the type of information students need to be encouraged to investigate.

SPECIES SET + LEARNING OUTCOMES



BRAZIL WOOD

Trees and forests, photosynthesis, the carbon cycle, deforestation



BANANA BAT

Pollination, the importance of bats in our economy



SPHAGNUM MOSS

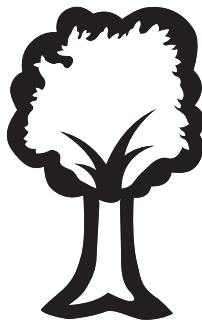
The water cycle and how small plants can be the basis for important ecosystems.



ROSY PERIWINKLE

Importance of plants as medicine

BRAZIL WOOD



This is the tree that gave Brazil its name way back in around 1500. Most professional violin bows are made from the heartwood of the Brazil wood tree. In fact the same goes for cellos, violas and double basses too. The wood has been highly valued for its combination of durability, flexibility and resonance since the early 19th Century. Before then it was used to make red dye.

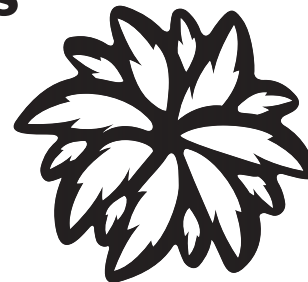
The global trade in Brazil wood is estimated to be worth millions of (US) dollars a year, much of it illegal and in defiance of national and international legislation. As a result, Brazil wood has already become extinct in some parts of its range and is threatened everywhere.

This is potentially very serious for the environment because Brazil wood is regarded as a keystone species in the forest, essential to maintaining the forest ecosystem. Quite apart from its role in helping to regulate the climate through the carbon and water cycles, trees like the Brazil wood provide habitats for animals and other plant species such as epiphytes to flourish. Remove the trees and you destroy the habitat.

RESOURCES

<http://www.robertmorrowbowmaker.com/thebowmaker/smithsonian/index.htm>
<http://www.ourplanet.com/vcmc/pdfs/trees.pdf>
http://www.globaltrees.org/tp_paubrasil.htm
<http://kids.mongabay.com/>

SPHAGNUM MOSS



As well as storing water and providing food and habitats for many animals, insects and birds, the sphagnum mosses that comprise peat bogs have been exploited by humans for thousands of years. Because of its absorbent and antiseptic properties, sphagnum moss was used in vast quantities as a wound dressing as recently as the Second World War. Even today demand for peat remains high. It is still used as a fuel in countries like the Republic of Ireland, where it accounts for 10% of the country's energy consumption. And many gardeners appreciate its water retentive properties as a growing medium in commercial compost.

But peat bogs are highly vulnerable habitats that take thousands of years to form. It's been estimated about 1cm of peat is laid down every 10 years, which equates to an astonishing 7000 to 10000 years for an 8 metre layer of peat to be established. And the evidence is conclusive that peat harvesting at current levels is simply unsustainable.

Sphagnum moss is also seen as a key indicator of global climate change. On Macquarie Island, for example, the disappearing sub-Antarctic moss population is being monitored and its decline has been directly linked to global warming.

RESOURCES

<http://www.peatlandsni.gov.uk/index.htm>
http://www.peatlandsni.gov.uk/plants/blktbgplts/moss_sp.htm
<http://www.snh.org.uk/pdfs/education/sphagnum%20moss.pdf>
http://www.earthwatch.org/europe/downloads/Get_Involved/ClimateChange5.pdf

KEY STAGE 3 SCENARIO

(cont'd)

SPECIES SET + LEARNING OUTCOMES



BRAZIL WOOD

Trees and forests, photosynthesis, the carbon cycle, deforestation



BANANA BAT

Pollination, the importance of bats in our economy



SPHAGNUM MOSS

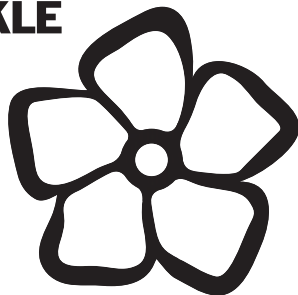
The water cycle and how small plants can be the basis for important ecosystems.



ROSY PERIWINKLE

Importance of plants as medicine

ROSY PERIWINKLE



The Rosy periwinkle from Madagascar was for many years grown simply as an attractive bedding plant for tropical areas. It comes in a range of pinks and reds that give rise to its common name. But today it has a more serious purpose; planted around the world during colonial times, it quickly became known as a useful folk medicine for diabetics.

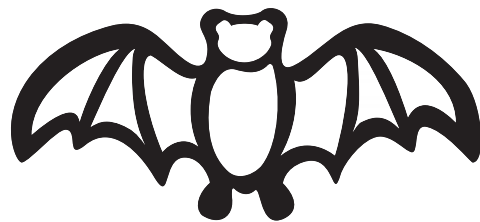
American and Canadian researchers during World War Two became aware that soldiers stationed in the Philippines were using it instead of insulin during shortages. Whilst researching the anti-diabetic properties of the plant in the 1950s, scientists discovered the presence of several highly toxic alkaloids in its tissues.

These alkaloids are now used in the treatment of a number of different types of cancer. One derived compound, called vincristine, has raised the survival rate in childhood leukaemia from less than 10% in 1960 to over 90% today. The Rosy periwinkle shows how important it is to preserve areas of rich biodiversity, as there may be other 'miracle drugs' contained in plants just waiting to be discovered. It also epitomises the issues involved in exploiting the riches of the plant world.

RESOURCES

<http://www.bgci.org/ourwork/medplants/>
<http://www.livingrainforest.org/about/economies/rosyperiwinkle>
http://250.kew.org/Plants/KEW_050127.html
<http://www.wildmadagascar.org/conservation/>

BANANA BAT



The Banana bat is tiny, growing to just 70mm in length and weighing 10 to 12 grams. Living in the tropical dry forest of southwest Mexico, they eat mainly nectar and pollen. With their long noses they help pollinate many important plants such as: agaves (that provide us with alcohol and ropes), columnar cacti (that produce dragonfruit) and the beautiful and culturally important Pseudobombax tree.

But the Banana bat is an endangered species and its disappearance could threaten the future of some of Mexico's most precious ecosystems.

Bat pollination is very important all over the world, with hundreds of plant species completely or partially dependent on bats for pollination. Bats also help to increase genetic diversity and this helps plants fight off diseases and remain healthy. Bats that eat fruit also play a crucial role in seed dispersal through their droppings. Bats that eat insects are important for pest control.

About 20% of all mammals are bats, that's about 1,100 species. Many of these species are threatened with extinction. There are 17 species of bats in the UK. There are 138 species of bats in Mexico.

RESOURCES

http://www.wildlifetrust.org/enter.cgi?p=news/2005/0401_bats.htm
http://animaldiversity.ummz.umich.edu/site/accounts/information/Musonycteris_harrisoni.html
<http://www.batcon.org/index.php/media-and-info/informational-flyers.html>