Around the World in 80 ways



Using plants to raise development issues at Key Stage 2

Tide~ Teachers in development education DEC [Birmingham]

Working together to bring a global dimension and development perspective to the curriculum.

Tide~ [Teachers in development education] is a network of those involved in the Development Education Centre. It has been set up to offer teachers an opportunity to be involved in creative work to explore ways of bringing a global dimension and a development perspective to the curriculum.

This publication has resulted from a Tide~ curriculum project. It shares some of the thinking and practice of the teachers' group involved [see acknowledgements inside the back cover].

Please join Tide~ in order to support DEC's work or to become part of it.

Application forms are available from: Development Education Centre,
Gillett Centre,
998 Bristol Road,
Selly Oak,
Birmingham B29 6LE.

Around the garden in 80 ways

Ideas for raising development issues at Key Stage 2

Written by:
Sue Baughan, Pat Cooke, Lisa Fletcher, Julie Fox, Peter Fry, Bill Graham, Jo Jones, Diane Kearns, Susan Londesborough, Vicki Long, Norman Machin, Arnold Marchant, Viki Mayes, Catherine McFarlane, Wendy Palmer, Paul Patience, Pam Ramsey, Sue Rickerby.

Published by Development Education Centre [Birmingham] in partnership with the Botanical Gardens Base, Birmingham.

Available from:
Development Education Centre [Birmingham]
998 Bristol Road
Selly Oak
Birmingham B29 6LE

© Development Education Centre [Birmingham], 1994

ISBN: 0 948838 36 1

Introduction

How can we use plants to raise development issues? This was the key challenge for a curriculum project which took place over a year, involving DEC, the Education Centre at Birmingham Botanical Gardens, and a group of Birmingham Key Stage 2 teachers. The project offered the twelve teachers the opportunity to develop creative ideas about how plants might be used as a stimulus for raising issues such as: power, trade, gender, cultural tradition and environmental sustainability.

A group of four teachers was also working with the World Development Centre in Leicester and their local University Botanic Garden.

The group met over two terms, for daytime inset and after-school meetings. Central to this process were two visits per class to Birmingham Botanical Gardens, one each term. These were focal points for the work which was undertaken in the classroom. We deliberately tried to work in a range of curriculum areas, to explore the potential for plants as a cross-curricular resource.

We came from a range of primary schools across the city and between us taught children from year 3 to year 6. We also found that our schools had significantly different approaches to planning the curriculum, which gave us varying degrees of flexibility. In spite of the curriculum constraints, we all found many ways to use plants to enrich our work and to raise issues.

In preparation for the classroom work we explored a range of questions and concerns. These included: what we meant by development issues; how we could make use of a visit to a collection of plants if we were planning to focus on a single plant, and how we might get started. We have suggested some ideas about these concerns in Section 1.

Section 2 shares some of the work we did with the children. It is designed for you to dip into, as a stimulus to your own planning. We used a variety of different starting points, for instance some of us started with a particular programme of study, such as Exploration and Encounters, and others started with a country, for example Bangladesh. Each stimulus page contains one specific piece of work, or case study, that worked particularly well with the children. We have tried to share the scope of work that we undertook, and felt that a broad overview would be more useful than detailed curriculum plans. We hope our ideas spark off even more exciting ones from you!

We have also included some useful addresses and source material in Section 3 which we hope will support your own work.

Around the garden in 80 ways has been written by and for Key Stage 2 teachers; however we can see that the approaches we have used are applicable for those working with other age groups, those working in botanic gardens, environmental education centres or anywhere with a collection of plants from around the world.

Contents

1: Setting the scene

What do we mean by development issues?	4
The development compass rose	5
Using the compass rose	6
Botanic gardens and other plant collections	8
How best to use a plant collection	9
Primary/secondary links	10
Starting points	11

2: Stimulus work

Starting points	*Case studies*	
World climates	Deserts: the issue of land erosion	12
Rainforest	Here today, gone tomorrow?	14
Hot and cold	Making musical instruments	16
St Lucia	Bananas: unzipping the facts	18
Plants we use	Creating a plant fact file	20
Industry	Making and selling pump bags	22
Bangladesh	Jute: who gains, who loses?	24
Concern about drugs	An assembly about drugs	26
Exploration & encounters	Cocoa: one crop, two communities	28
Victorian plant hunters	Plant hunters today:who benefits?	30
Britain since 1930	People and land in Brazil	32
Nuts	Brazil nuts: forest & factory people	34
Materials	Recycling cotton through embroidery	36
Changing soils	Protecting the future	38
The banyan tree	Who decides about development?	40
Trees in our coppice	It takes a lifetime to grow	42
Harvest	Whole world cake	44

3: Resources and addresses 46

Acknowledgements Inside back cover

What do we mean by development issues?

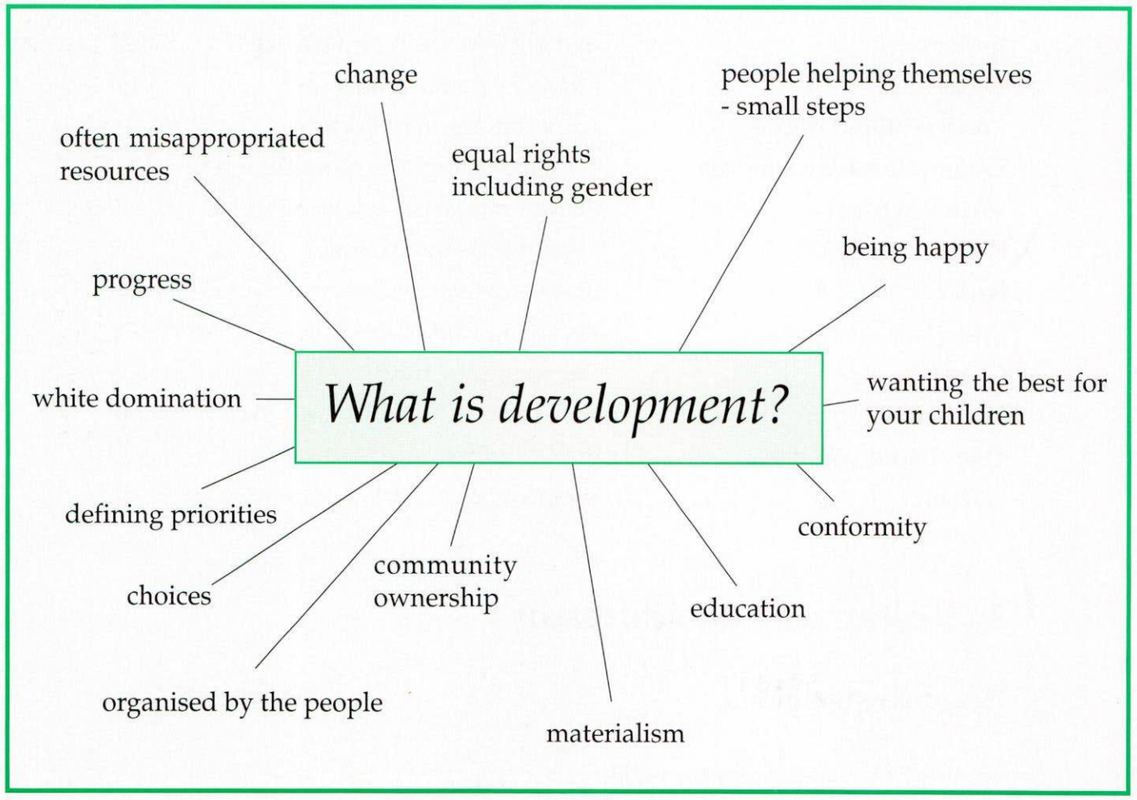
We sat in a circle around a random selection of photographs taken in different parts of the world. Our task was to choose one photo which raised issues about development and to share it with our partner, and then with the whole group. After a degree of discomfort about where to start, we each chose and shared our ideas. As we talked we realised that the exercise had raised a host of complex questions - is development about progress? Who is developed? How can we judge? Is development personal or political? Who decides and on what value basis? Who controls people's choices?

Some of the ideas we came up with are included below. We disagreed on a number of issues but were aware that development was a process affecting everyone, whether we live in tower blocks in inner city Birmingham, leafy commuter belts of Southern England, townships in Johannesburg or in rural communities in the Philippines.

The development compass rose

We used the development compass rose (see opposite) as a tool for helping us to deal with our confusion and the range of issues encompassed in the term 'development'. This is a framework which encourages us to ask a range of questions about any place or situation. As a real compass rose can be placed on any locality and enables us to find our bearings, so the development compass rose can be placed on any locality, photo, artefact or plant to help us generate a range of questions about four aspects of development and the relationships between them:

- Natural/ecological questions
- Economic questions
- Social and cultural questions
- Who decides? Political questions





Using the compass rose

We used the development compass rose by applying it to single plants. We walked round the botanical gardens in pairs and chose a plant, e.g. the mango tree, the banyan tree, a Madagascan periwinkle, a cactus, and a tea bush. Each pair then generated as many questions as they could about their plant using the four points of the compass rose. We have included an example of ideas we came up with for the sisal hemp plant.

It became clear in sharing our ideas that we needed to know more about some aspects of the plants; we also realised that some plants lent themselves more easily to questions about economics, while others raised questions about sustainability and so on. However, when we worked at it, connections with all four compass points could be made for each plant.

Some people were so inspired by this activity that they used the plant they had chosen as the focus for their classroom work that term. For others it was a useful process for planning, to ensure that all aspects of development were covered.

For those working with Year 6 or above, this activity could offer a useful focus for a visit to a collection of plants from around the world. For others, we would suggest that it is a valuable inset or planning activity.

In ***Around the garden in 80 ways*** we have concentrated on plants from different parts of the world. However this approach can also be used to raise development issues with plants found in this country, as people everywhere face development issues.

Why teach children about development issues?
As a result of this work around development we brainstormed why we thought it important to explore such issues with children. These are some of our ideas:

- to foster positive attitudes
- to question things and develop critical thinking
- to build empathy with other people, their experiences and cultures
- to increase knowledge and awareness
- to increase sensitivity and openness
- to tackle stereotypes
- to address wider issues, outside the children's direct experience
- to make the national curriculum more relevant
- to help children appreciate their own situation as well as other people's.

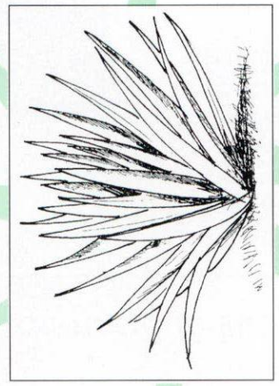


Natural

In which countries does it grow?
What type of soil does it need?
Does it need much water?

Economic

When did it become a cash crop?
Did it interfere with other trade e.g. jute?
Who uses sisal now?
Why is there less trade in sisal now?
Is the introduction of modern artificial fibres the cause?



Social

What is the process for manufacturing sisal?
How many people are involved?
What size are the plantations?
Has it been grown at the expense of other crops?
How many jobs has it created/destroyed?
What are working conditions like?
How much do workers get paid?

Sisal compass rose

Sisal hemp originates in Central America, but is now widely cultivated. It was first grown commercially in East Africa in the 19th century. Sisal has thick succulent leaves, growing up to two metres high. The leaves are cut and the soft green parts are removed, leaving lengths of fibre. These are used in the manufacture of hessian and other coarse cloths and ropes.

Who decides?

How do we know it was first grown commercially in the 19th century?
Was it grown as a result of colonial activities?
Was it only exported to Britain or to other colonial countries as well?
Was it grown by Africans or colonials?
Is the drop in the sisal trade linked to the end of colonialism?

Botanic gardens

Botanic gardens are collections of living plants grown for educational, economic, medicinal or scientific purposes. An arboretum is a specialist garden which concentrates on growing trees and other woody plants.



Botanic gardens have played a significant part in many cultures and civilizations over the ages, contributing to their development, economic progress and commercial expansion. Many crop plants, for example, were introduced by or through botanic gardens, including tea, coffee and chocolate.

In recent years the importance of the conservation of plant diversity has been highlighted and botanic gardens worldwide are now being recognised as centres for the conservation of plants. This includes wild relatives of the world's major crops so that they are not lost as a future resource for plant breeding.

While plants' natural habitats such as rainforests disappear, botanic gardens are acting as a modern day Noah's ark. However, the importance of education is also considered vital in order to encourage a more responsible attitude towards the environment and its conservation. See pages 47-48 for addresses.

Where to find collections of plants from around the world

local parks

arboreta

cultural gardens

garden centres

botanic gardens



garden allotments

community gardens

local woodlands

school grounds

formal gardens

stately home gardens

How to best use a plant collection

We reflected on the things which we felt were important when making an educational visit to a plant collection such as a botanic garden.

Pre-planning

- **contact the curator or education officer to discuss the content and organisation of the visit;**
- **be sure that the plant/s you wish to look at are going to be growing or fruiting at that time of the year.**

For instance, in this project:

Each teacher and education officer met and shared their individual skills so that the curriculum needs of the class were matched with appropriate activities in the botanic garden.

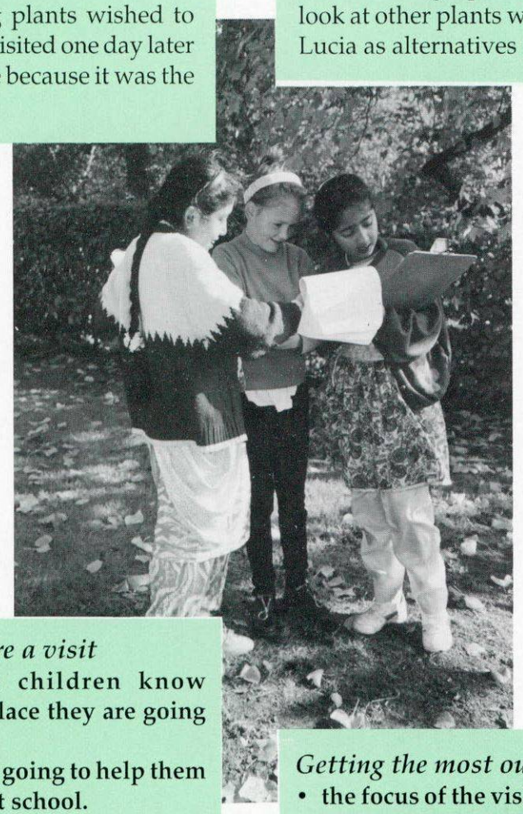
One group looking at drug plants wished to look at tobacco. If they had visited one day later it would not have been there because it was the end of its growing season.

Organising the visit

- **work in small groups each with a helper;**
- **each group should work independently of other groups;**
- **have a range of activities based on a general theme, even though the focus back at school may be on just a limited number of plants.**

For instance, in this project:

A class wished to visit Birmingham Botanical Gardens to study the banana plant as part of its work on St Lucia back at school. But it is very difficult for 30 children to be involved in purposeful work when they are all clustered around a single plant. Instead, they decided to look at other plants which could be grown in St Lucia as alternatives to growing bananas.



Preparing the class before a visit

- **make sure that the children know something about the place they are going to visit;**
- **explain how the visit is going to help them with their work back at school.**

For instance, in this project:

One teacher used photographs of plants in the glasshouses to introduce the different environments at Birmingham Botanical Gardens.

Getting the most out of a visit

- **the focus of the visit may be centred around one subject area but look for ways to make cross-curricular links with other subject areas.**

The projects described in this booklet illustrate the point!

Primary/secondary links

We found that linking with local secondary schools enhanced our work both in the classroom and on the visit to the botanic gardens. This letter highlights some of the benefits for both schools.

Ms A. Jones
Headteacher
Woodend Secondary school

Dear Ms Jones,

I am a teacher at Hazel Street Primary, one of your feeder schools. I would like to strengthen our links with you, to ease the transition for children from our school to yours. We are planning a project with the local botanic garden and would like to invite you to assist in the development of this.

To give you some ideas of possible starting points for collaboration, here are some examples of work that have been done by other secondary schools, working in partnership with their feeder schools:

Biology

- designing computer data sheets on different crops, e.g. sugar cane - where is it grown? Who grows it? How important is it to the local economy?
- experiments in preserving crop samples, e.g. rice, oranges, avocado.

Design

- drawing interesting and unusual plants, e.g. cacti and insectivorous plants;
- looking at the uses of textile crops, e.g. sisal, cotton, jute;
- home economics - balanced diets, the origins of foodstuffs.

This could be beneficial to your school in a number of ways:
Your students could develop their communication skills; the project could provide a focus for assemblies, e.g. on world trade; it could support community links, between schools and with ethnic minority groups.

I also envisage that it could benefit our school and children by making use of the great range of skills of your teachers and students and gaining the practical help older students can offer, for instance during our visit to the botanic garden.

In planning a collaboration we would be flexible in fitting around your timetable constraints.

We look forward to hearing from you.

Yours sincerely,

Chris Glover

Starting points

This page describes how we drew up the model which we have used for Section 2 of *Around the garden in 80 ways*. It shares our experience of using a range of starting points for introducing work on plants and development.

With the constraints of the National Curriculum and detailed whole school planning, we had anticipated that everyone involved in the project would have to work on prescribed topics or themes. This was true of many of the group, but for by no means all. The challenge here was to explore which themes or topics lent themselves to work on plants and development. We were keen to encompass work on history, music, art and technology and R.E. as well as the more obvious science and geography. Teachers with fixed cross-curricular or subject based themes found there was potential for work in many different areas, for example:

- **Exploration and encounters**, a history project which drew on plants that had been brought from the 'New world' to Europe, for example potatoes, vanilla, cocoa, and spices. It helped children to think about trading links, and the lives of the people who grow crops that we eat every day.
- **Rainforest**, a project in which children listened to and made music as a way of appreciating the sounds and atmosphere of the rainforest. The project concentrated on using feelings as a way into exploring issues about the destruction of the rainforest people's way of life.
- **Bangladesh**, a project which allowed the children to find out about jute and the country's dependence on this important cash crop.

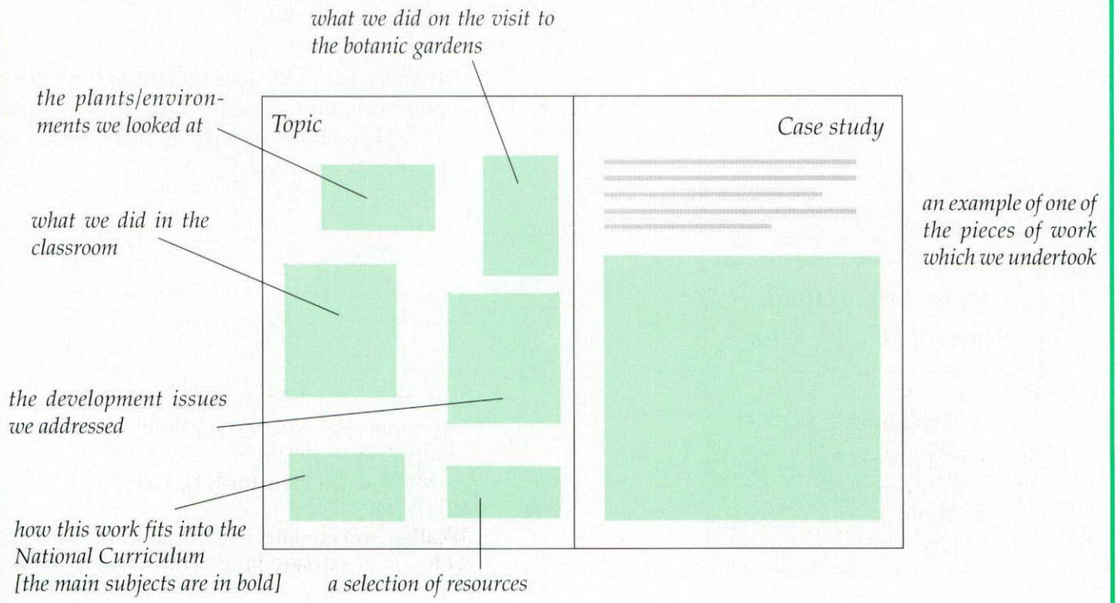
Some of the group had greater flexibility in their curriculum arrangements, and they could take different starting points, for example:

- One teacher was so inspired by the potential for using the development compass rose on the banyan tree that she developed her work around it.
- Another teacher worked in a school where the community was facing issues around drugs, and used this as his starting point.

We realised that whatever our starting point, there were elements common to all our work. These form the key elements of the grid we have used in Section 2.

Each left hand page contains:

Each right hand page contains:



World climates

Year 6

Plant/s or environments we used

We looked at a variety of plants in the desert and tropical houses and noted the contrasts. We observed the size, shapes, colours and textures of plants in each environment and their adaptation to the climates.

What we did on the visit

The children compared and measured the conditions in the tropical and desert houses and described their feelings about each. They studied features of the plants growing in each, learning how they adapt to their environments. Detailed drawings were made of plant characteristics in each environment to illustrate how plants can survive in a range of climatic conditions.

What we did in the classroom

We compared both climates, using graphs, and marvelled at the contrasting features of plants in both environments. We learned about the threats to these and other environments from ignorance and misuse. The children were alarmed at the rapid spread of destruction in both environments and considered how to bring attention to the problem. They thought that the indigenous people should be involved in decision making, using their skills and knowledge.

The development issues we addressed

Natural/Social We discussed the interdependence of people, plants and animals in each environment, if they are to survive. We compared rainforest people of Sarawak and Cameroon admiring the co-operation and self sufficiency in sustaining their forest environments. We focused mainly on the lives of desert families and how their nomadic life may destroy or enhance the land, according to the management of it.

Who decides? We touched upon the role of governments in supporting conservation and protection of endangered species of plants and animals.

How it fits into the National Curriculum

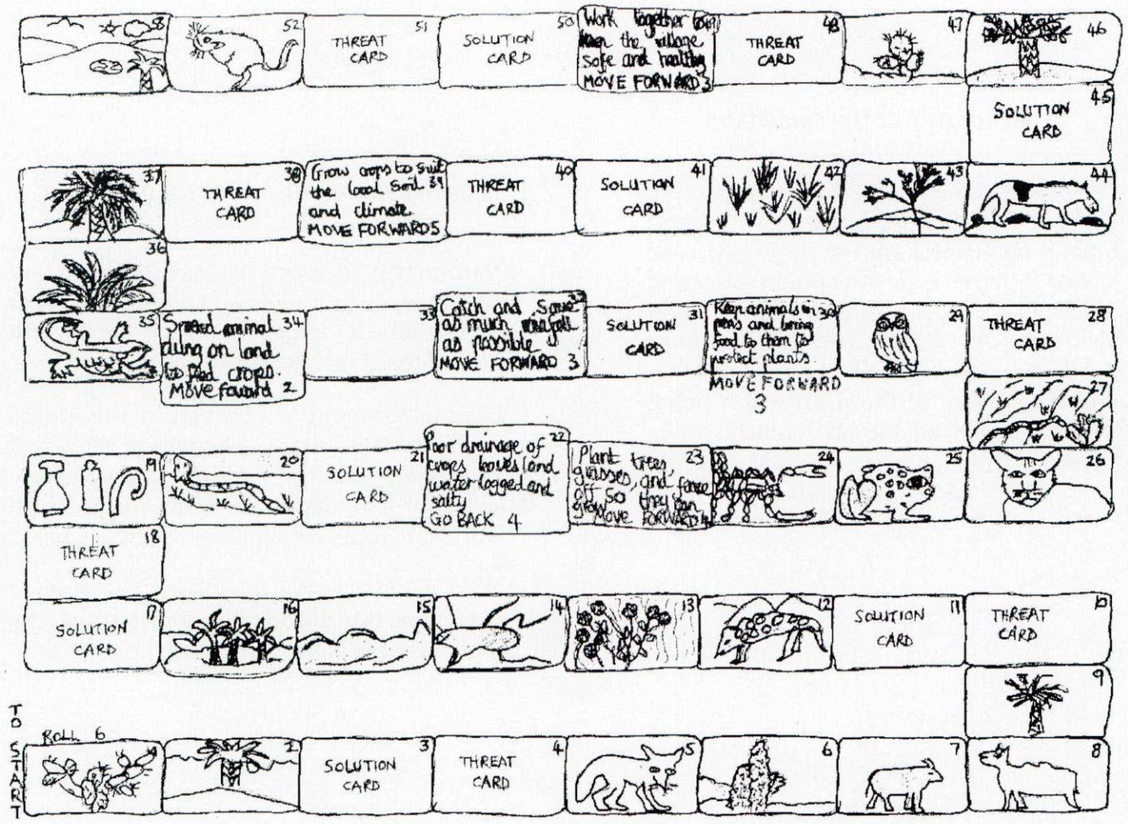
Geography,
Science,
P.S.E. ,
Maths,
English.

Resources

Two way ticket, Yorkshire TV/UNICEF video
Environmental atlas, David Wright, Philips/WWF, 1992.
A whole world view for KS2, David Wright, WWF, 1992.
Weather and climate, John Mason, Wayland, 1988.
24 hours in a desert, Barrie Watts, Watts, 1991.

Deserts - the issue of land erosion

The children designed their own illustrated board game, including packs of 'threats' and 'solutions' cards, to focus on the plight of the Sahara desert. They used their observations at the botanical gardens, the video *Two way ticket* and information from books to emphasise the dangers of desertification and possible remedies to halt the process. One group of children produced a simpler version of the statements to make the game accessible to children with different abilities.



An example of a threat card

> Cutting down forests for fuel lets wind and rain blow away the soil.
> MISS ONE TURN

An example of a solution card

> Keep fewer animals in herds and move on before they over graze the land.
> HAVE AN EXTRA TURN

Rainforest

Year 5

Plant/s or environments we used

We looked at plants in the tropical house and focused on what it might feel like to live in the rainforest.

What we did on the visit

We concentrated on the plants located in the tropical house and paid particular attention to those plants that we derive products from e.g. banana, ginger, pineapple and coffee. The children looked at what each plant gives us, the part of the plant that is used, its country of origin and the use made of its product.

What we did in the classroom

We looked at the products of the rainforest, which we studied as four distinct groups: timber, medicines, spices, and foods. We looked at the life cycle of a rainforest tree and the life that it gives to other living things. A visit from David Shaw with his Rainforest Roadshow (see page 48) made the children far more aware of the destruction being wrought on this unique environment.

The development issues we addressed

Natural We discussed the interdependence of people, plants and animals in the rainforest, life cycles within the rainforest and the rate at which the rainforests are being destroyed.

Economic/Social We looked at the global diversity of the origins of food in our shops and supermarkets. The children became more aware of how many countries in the 'third world' are contributing towards feeding us.

Who decides? We discussed the role of governments in making decisions, such as why rainforests are being cut down.

How it fits into the National Curriculum

Geography,
P.S.E. ,
English,
Art.

Resources

"It's our world too", DEC, 1992.
A rainforest child, Sue Lyle and Maggy Roberts, Greenlight Publications, 1992.
Antonio's rainforest, Anna Lewington, Wayland/WWF, 1992.

Case study

Here today, gone tomorrow?

We tried a range of activities on the destruction of rainforests. They included:

- Looking at why people need the forests. We talked about the needs of people living in the rainforest, such as fuel for cooking; medicine; food e.g. fruit and nuts; bamboo for building homes, and resin for starting fires and making torches. We compared these to global needs, e.g. wood for furniture and rubber for tyres.

- We used a ranking exercise from *A rainforest child* about what the world would be like without rainforests. The children arranged nine statements in a diamond shape, with the one they thought was most worrying at the top, and the least worrying statement at the bottom. This exercise helped them prioritise, either on their own or in small groups, what they considered to be the most important reasons for keeping the rainforests. One pupil's example:

Rainforest plants are used to make medicines to help find cures for diseases such as cancer. If the forests are destroyed we may never discover cures for some diseases.

Trees purify the air we breathe. Without the trees of the rainforest our air would become more polluted.

Without forest trees to hold the soil many rivers and dams get silted up with earth, rocks and stones which are washed away by the rain.

Trees are cut down to plant rubber and palm oil trees. Chemicals sprayed onto these trees pollute the rivers, kill many of the fish and destroy the people's crops.

Forests protect the soil from the rain. Without them the soil is washed away into the creeks and rivers. Trees absorb the rain and protect people from floods.

At least half of the rainwater that falls on tropical forests is returned to the atmosphere by the forest. It may then fall as rain in areas many miles away. Deforestation may affect the rainfall in these areas too.

New industrial raw materials are still being discovered in rainforests; many will never be found at all if the trees are destroyed.

The rainforests have evolved over millions of years and once they have been cut down they cannot be replaced.

The tropical rainforests pump heat from the hot regions of the world to the cooler regions, and without them the climate will change.

Example of ranking statements from 'A world without rainforests' in *A rainforest child*

- The whole class wrote protest letters to the President of Brazil and were surprised and delighted to receive a telegram in reply. A particularly well educated parent was able to translate the Portuguese for us! Through this exercise, we gained a far greater understanding of the reasons that governments give for destroying the rainforests.

Hot and cold

Year 4

Plant/s or environments we used

We looked at all three glasshouses, desert, temperate and tropical, but focused mainly on the tropical.

What we did on the visit

We had four activities: making music in the tropical glasshouses using the school instrument trolley, tape recorded birds and our own music; brainstorming feelings about the rainforest atmosphere and discussing a survival scenario; finding out about products from plants and measuring rainfall, humidity and temperature in the three glasshouses.

What we did in the classroom

We began by making music using the school's musical instruments. We sang in rounds and made up our own songs. We then had a visit from David Shaw of the Rainforest Roadshow, who brought slides, pictures, artefacts, creatures [tarantulas and scorpions] and musical instruments from the forest. Having seen instruments made from plant materials, the children had a go at making their own. The visit gave impetus for studying the Yanomami Indians in Brazil. The children wrote letters to the Brazilian President and we received a telegram in reply!!

The development issues we addressed

Natural We focused on the interdependence of environments; people need animals and plants to survive. We explored the use of plant material to enrich people's lives through the example of instrument making.

Social We focused on two groups: the Inuits of the Arctic and the Yanomami Indians in the Amazon and how their lifestyles have been affected by developments in the wider world.

Who decides? After the Rainforest Roadshow visit we talked about what we could do about threats to environments and the children wrote to the Brazilian President.

How it fits into the National Curriculum

Music,
Geography,
Science,
English.

Resources

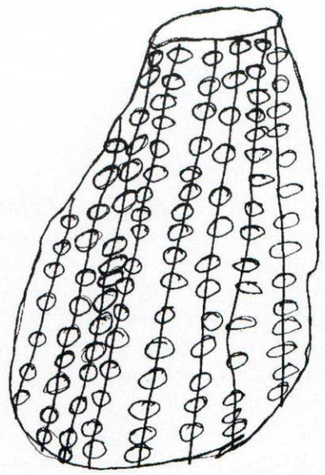
A rainforest child, Sue Lyle and Maggy Roberts, Greenlight Publications, 1992.
Some crafty things to do, Karen Hale, Oxfam, 1992.
Instruments from Knock on Wood.

Case study

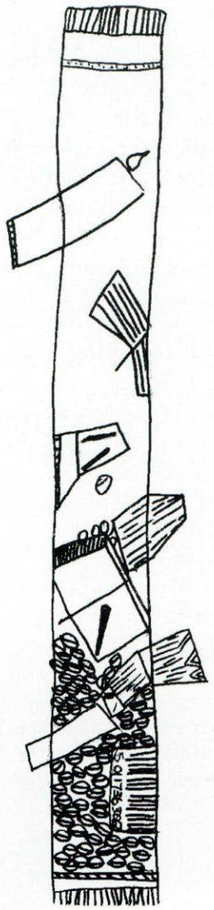
Making musical instruments

We found out about how we could make instruments from plant materials using information given by Kew Gardens and ideas in *Some crafty things to do*. The botanical gardens bought some superb instruments from Knock on Wood, [see page 48] and making music with these encouraged the children to have a go at making their own.

In our first attempt to create an instument called a rainmaker, we used a cardboard tube and beans. After a suggestion from another teacher involved in the project, we tried again using a clear plastic tube, making other slight changes. This was a great improvement, hence rainmaker two! We also made a gourd with threaded seeds on the outside and hope in the long term to make enough musical instruments to produce an 'unusual' orchestra for use by all classes at school.



How we made our rainmaker instruments



We covered a balloon with papier mache. We left it to dry. The ballon was cut and it was panted brown Next we threaded some melon seeds onto orange cotten. Then we Stuck these onto the outside of the papier mache.

We had a clear Plastic tube and heard which Seeds made a Sound like a rainmaker we Put them in the tube then mSLong cut the tube with zig-zag lines. We cut Some cardboard out and Put it into the gaps. then we turned it upside down to See if it worked.

St Lucia

- an economically developing locality

Year 5

Plant/s or environments we used

We focused upon St Lucia in the Windward Islands and looked at aspects of its landscape, weather and wealth. Bananas are the main commodity crop. They grow best in tropical climates ranging from South and Central America to the Far East.

What we did on the visit

The children discovered that the banana was a non-woody plant. They looked at how the trunk is made from overlapping leaves and could appreciate how easy it would be to chop down with a machete. They also looked at other crops which thrive in tropical conditions e.g. cocoa, rice, rubber and considered implications for producing a final product.

What we did in the classroom

Using a photopack, discussion and role play, we compared the similarities and differences in the way of life of St Lucians and people in Birmingham. We looked at land-use on St Lucia. After the visit, the children tried to site a new banana plantation. We talked about the factors involved in growing bananas. Some children researched the price of bananas in local shops and discovered the diversity of world production.

The development issues we addressed

Economic The large companies which export and market bananas to Britain receive almost 90% of the value of the fruit. The farmer who produces the fruit receives the rest. If the price of fruit were reduced, it would be the producers who would suffer.

Social We looked at the roles played by men and women in the industry.

Who decides? Governments are affected by the decisions of outside agencies and this can adversely affect the livelihood of people.

How it fits into the National Curriculum

Geography,
English,
Maths,
Economic and Industrial Understanding,
Citizenship.

Resources

Focus on Castries St Lucia, Vincent Bunce et al. Geographical Association/World Aware, 1992.
Go bananas, Ange Grunsell and Theresa Stearn, Oxfam, 1990.

Case study

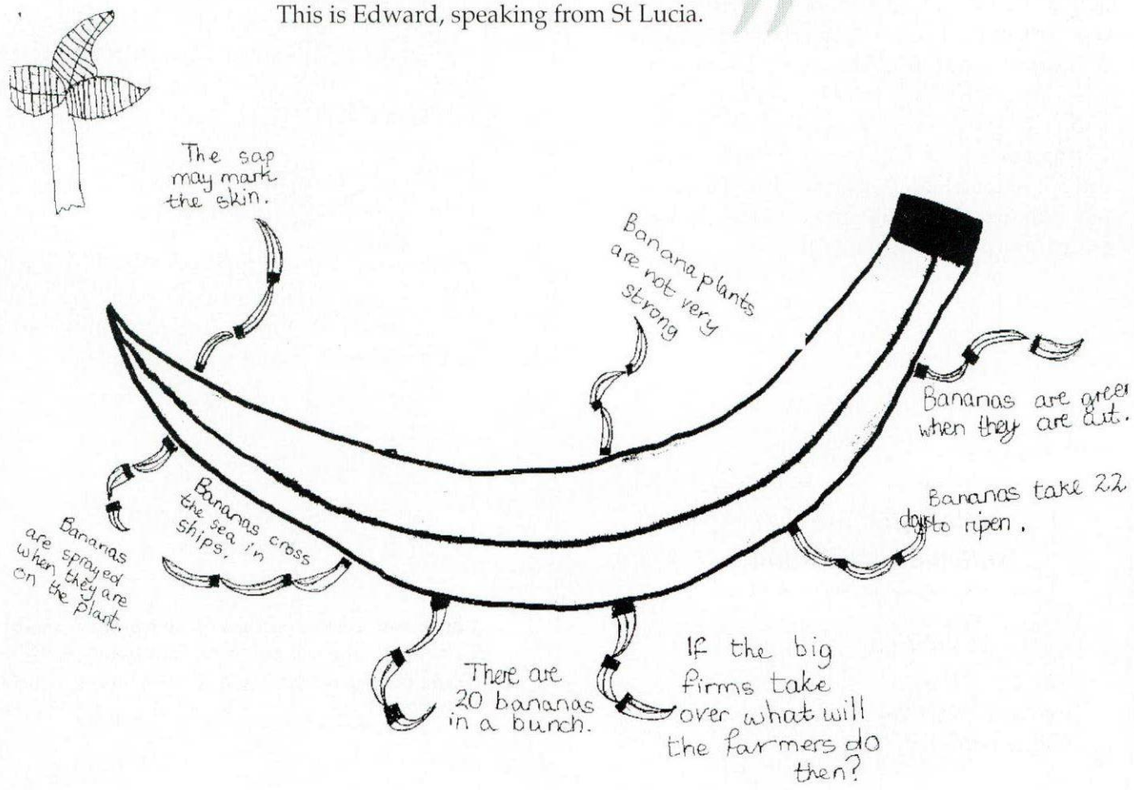
Bananas: unzipping the facts

Having talked about the problems facing St Lucian farmers, the children pretended that they were reporters for an international news agency. They presented their reports on an improvised studio set in the classroom.

"This week's 'Focus Report' comes from Edward on the island of St Lucia, in the Caribbean.

St Lucia is not one of the richest islands in the Caribbean. After the year 2000, Fyffes, Geest and Del Monte will buy their bananas for 5p a pound while St Lucia will still sell their bananas at 8p a pound. St Lucia could sell oranges, pineapples and mangoes but they are already owned by big companies. They could also sell passion fruits but that isn't really a very popular fruit. But if that didn't work they could make some money with tourists. They have a lot of attractions like Castries, Mount Crimie, Souffrie. So if St Lucia doesn't buck up by the year 2000 they will be taken over by Fyffes, Geest and Del Monte. Or on the other hand all the Windward Islands could join together and fight against Fyffes, Geest and Del Monte.

This is Edward, speaking from St Lucia."



Children's brainstorm about bananas and some of the issues they raise.

Plants we use

Year 4/5

Plant/s or environments we used

We focused on economic plants from around the world - tea, coffee, sugar cane, bananas, rice, wheat, cotton.

What we did on the visit

We took 84 children to Leicester University Botanic Garden. Working in small groups, with an adult and an A level student, the children had three tasks to do: to follow a photo-trail [matching photos with locations on a map]; collect information about a plant; and visit the tropical house to learn about crops.

What we did in the classroom

After the visit we used the 'fruit from around the world' exercise from the *Banana education pack* . We explored what it would be like to live in a banana growing locality using activities from *Focus on Castries*. We followed the story of the banana using the chain reaction game. Each child had a card describing a person involved in growing, transporting and selling bananas. By talking and comparing roles they had to get into the right order and then look at how much of the price of a banana goes to the grower. Finally we made our own plants fact file.

The development issues we addressed

Natural Raising awareness about diversity of the world and the crops that grow in different environments.

Economic Addressing issues concerning cost and who gains and loses from trading arrangements.

Social Learning about the lifestyles of people in a contrasting locality.

Who decides? Creating awareness that many of the poorer countries of the world are helping to feed and clothe us and that the world trade system is biased.

How it fits into the National Curriculum

Geography,
Art,
English,
Science.

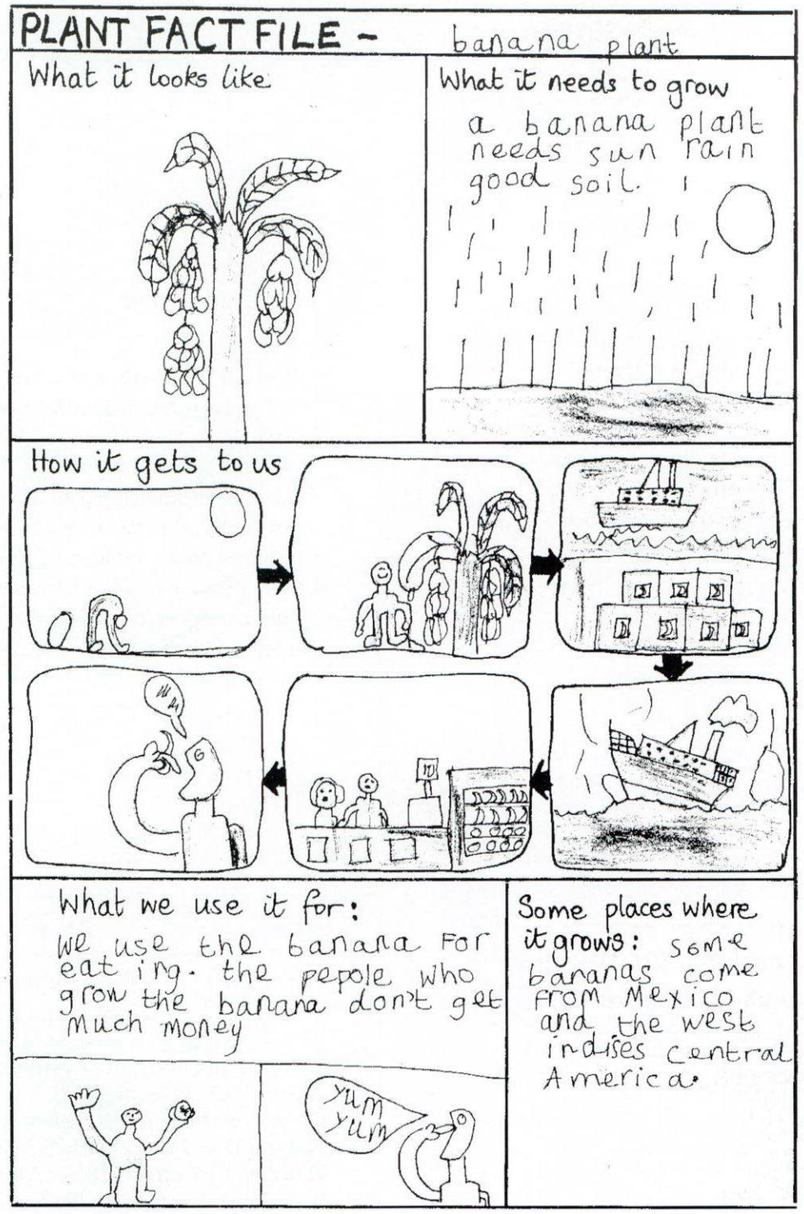
Resources

Focus on Castries, St Lucia, Vincent Bunce et al, Geographical Association/World Aware, 1992.
Trade focus pack, Christian Aid.

Case study

Creating a plant fact file

Using 'Growing bananas ', from the *Banana education pack* [now out of print] as a source of information, each child completed a plant fact file on the banana. Books and other information sheets were used to complete fact files on other plants we had seen growing. Next time we might include a box about the people involved in growing, selling or using the plant. This example shows the banana plant.



Industry

Year 6

Plant/s or environments we used

In the desert, sub tropical and tropical houses we looked at economic fibre plants from around the world e.g. sisal, palms, loofah, banana, coconut, kapok, and cotton. We also went into the herb garden to look for plants that can be used as natural dyes.

What we did on the visit

The children used a map of the botanical gardens to find fibre plants. They had to estimate the height, find the place of origin and find the part of the plant used. They made observational drawings of plants and picked berries and leaves which were later used to dye cotton.

What we did in the classroom

The children looked at the production of cotton, from the cotton grower to the retailer of the finished product. A role play activity based on the story of a pair of jeans showed the children's strong feelings about the unfairness of the trading chain, especially the exploitation of the producer country. They set up their own industry and made tie-dyed pump [plimsoll] bags to sell in school.

The development issues we addressed

Natural We looked at where and how cotton grows and the conditions it needs to flourish.

Economic The children looked at the people involved in the process of making a pair of jeans and considered what percentage each person received from the total cost. This raised strong feeling about who decides on prices and whether this is fair.

How it fits into the National Curriculum

Geography,
English,
Maths,
Science,
Technology,
Art.

Resources

Cotton, Renu Nagrath Woodbridge, A & C Black, 1990.
Green inheritance, [see Resources section, page 46]
Natural Dyes, Third World Science Project, 1982.
Hanging by a thread, Richard Borowski and Nigel West, Leeds DEC, 1992.

Case study

Making and selling pump bags

The story of a pair of jeans, taken from *Hanging by a thread*, gave the children insight into the whole process from cotton growing to retailing. They set up their own industry of making pump bags. In this process they came in at stage 4 as the producers.

The children got a loan of £25 from the headteacher and then bought 12 yards of material, cotton, rope and dyes. They made the bags and offered them for sale to other children. Having sold the bags they repaid their loan with 5% interest, and put their profit into a memorial fund for a little boy who had recently passed away.

Obviously they had no overheads as they weren't paying for electricity or wages, but the process helped them to appreciate some of the issues involved.

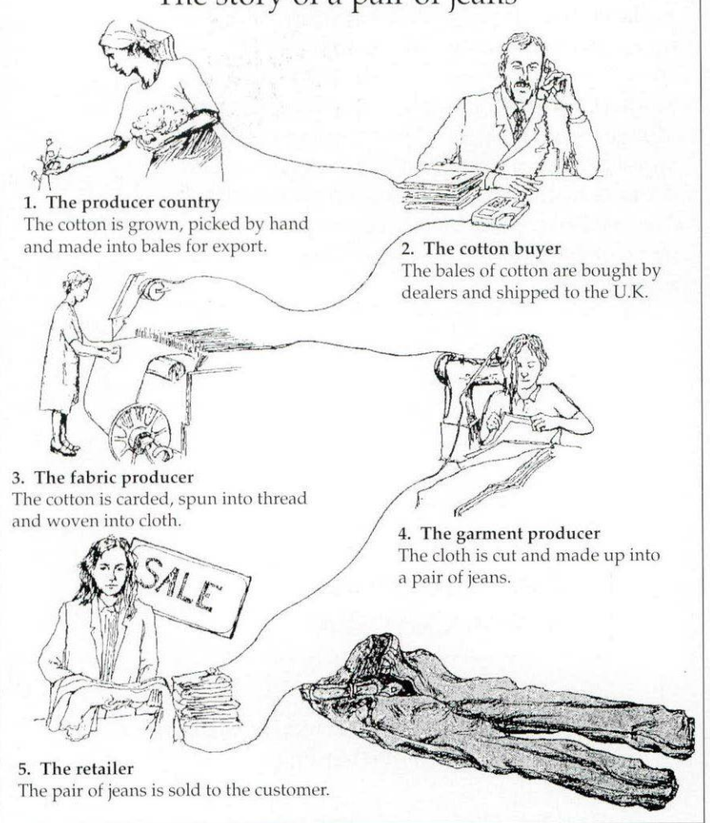
How much each person gets from a £24 pair of jeans

Producer country	60p
Cotton buyer	£1.00
Fabric producer	£2.00
Garment producer	£8.40
Retailer	£12.00

"You work harder as a cotton picker, you should get more than me. I only sell the jeans."

Quote from a child during the role play about the story of a pair of jeans

The story of a pair of jeans



1. The producer country
The cotton is grown, picked by hand and made into bales for export.

2. The cotton buyer
The bales of cotton are bought by dealers and shipped to the U.K.

3. The fabric producer
The cotton is carded, spun into thread and woven into cloth.

4. The garment producer
The cloth is cut and made up into a pair of jeans.

5. The retailer
The pair of jeans is sold to the customer.

Illustrations taken from *Hanging by a thread*

Bangladesh

Year 6

Plant/s or environments we used

The plants of Bangladesh: tea, sugar, rice, tobacco, mango and jute.

Fibre plants: flax, sisal, hemp, kapok, coconut, loofah, banana and cotton. We wanted to observe these plants and identify which part of the plant contained the fibres.

What we did on the visit

We looked at plants which are grown in Bangladesh and considered the conditions needed for their growth [temperature, rainfall, humidity]. We tried to identify other plants which might replace jute as a cash crop. We observed and discussed properties of the fibre plants, their size, shape and texture. We tried to discover which part of the plant contains the fibres.

What we did in the classroom

Before the visit we looked at the history and geography of Bangladesh and the partition of India including physical geography and climate, farming, fishing and industry, health and education. We talked about Bangladesh's dependence on jute fibre and looked at how some villages have set up co-operatives to produce and sell their own goods, making a small profit. We talked about the decline of jute production due to oil-based products becoming more readily available and planted the seeds we collected from our jute plant.

The development issues we addressed

Natural Conservation of land and prevention of the damage caused by flooding due to deforestation.

Economic Cash crops, in particular the jute trade and what plant might replace jute as oil based string and rope is now cheaper.

Social Health, education and the development of co-operatives in Bangladesh.

Who decides? The issues of a developing nation - who has a responsibility to help?

How it fits into the National Curriculum

Geography,
Science,
English,
Art,
History,
Health Education,
Environmental Education,
Citizenship,
Economic and Industrial Understanding.

Resources

Bangldesh - the strength to suceed, Oxfam, 1989.

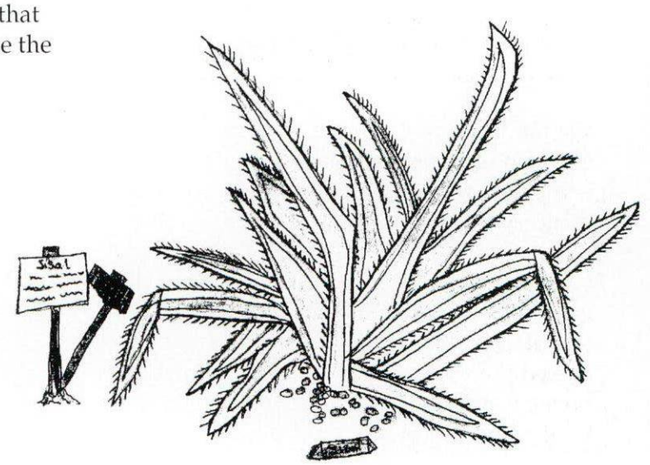
Case study

Jute: who gains, who loses?

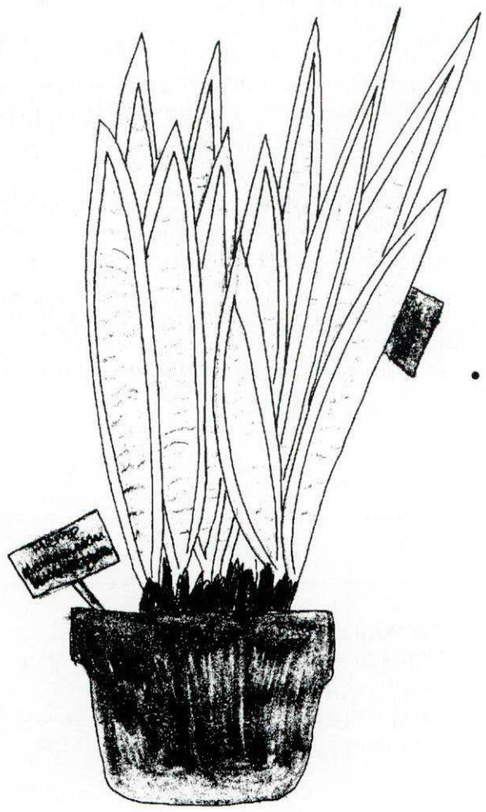
One of the issues the children felt strongly about was the growth of jute, the golden fibre of Bangladesh. The fibre comes from the bark of the plant and is used for making rope and twine, hessian, sacks and carpet backing. Most of the world's crop is grown in India and Bangladesh especially around the Ganges and Brahmaputra river basins. It requires hot conditions, with humidity of up to 95% and rainfall of 300mm per month during the growing season and it can withstand flooding. The two issues which directly affect the economy of Bangladesh are:

- **The increasing production of oil based products which is damaging to the production of jute:** The children tried to identify plants that could be grown as a cash crop should it become necessary to replace jute. They suggested cassava, yams, guava, banana and paw paw. They also felt that rice production should be increased to reduce the necessity for import.

Sisal hemp



Bow-string hemp



- **Much of the coarse fibre is imported by a manufacturer in Dundee to be woven into fabric. Jute farmers receive a very small fraction of the selling price:** The children took the parts of farmers and their workers, shippers and exporters and factory owners at the Dundee Works and representatives of village co-operatives who make finished products e.g. sikas. All gave their views about such issues as:
  - why farmers should receive a larger share
  - the effects on the environment of shipping the fibre across the world
  - who gains/who loses - views of Dundee factory owners
  - views of co-operatives - women have money of their own for the very first time in their lives.

Concern about drugs

Year 3/4

Plant/s or environments we used

We looked at the growing of coca plants for cocaine in Colombia; poppies for opium, heroin and morphine in Asia, and cannabis for marijuana in Jamaica. We touched on tea, coffee and tobacco briefly. The plants growing at the botanical gardens do not include hard drugs!

What we did on the visit

Working in two groups for half a session each, we visited the tropical and desert houses. We recorded temperature and humidity. We found drug plants such as tobacco, aloe, and rosy periwinkle; we marked the position of the plants on maps and made observational drawings.

What we did in the classroom

We prepared an assembly on drugs and designed posters illustrating aspects of the problem of abuse. We found out how and why drug plants are grown, by whom and for whom, and how they arrive for sale in this country. We drew a distinction between the legitimate use of drugs for medicine and the use of drugs for illegal purposes. We discussed the notions of risk and profit motive, poverty and land use. We interviewed our local police officer and a journalist.

The development issues we addressed

Natural We looked at the high yielding coca plant which can be harvested 10 times each year in Colombia.

Economic Low income farmers in Columbia see the high return from coca as the one hope of improving their lives, although the risks are great.

Social Chewing coca leaves originated with Andean peoples as a way of coping with the harshness of the environment.

Who decides? The drugs trade is international and involves huge sums of money. Our own neighbourhood is caught up in it.

How it fits into the National Curriculum

R.E.,
P.S.E.,
Geography,
English.

Resources

National Geographic Vol.175 No.1 1989.
Times Educational Supplement, 11th March 1994, lead article.
The pressure to take drugs [Understanding drugs series], Judith Condon, Watts, 1990.

Case study

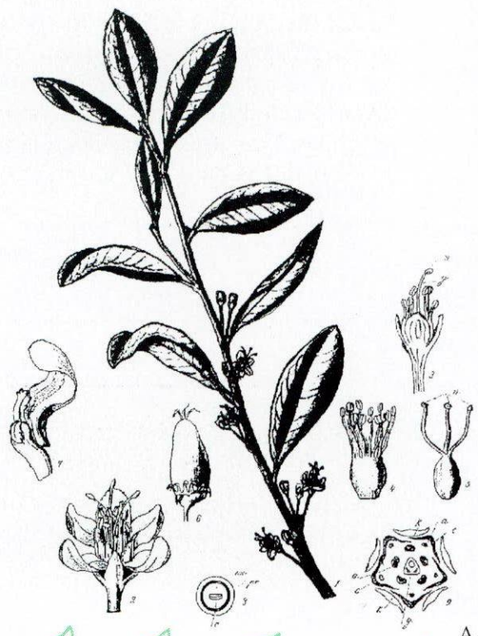
An assembly about drugs

One Wednesday morning the children presented an assembly before the school and some of their parents. We had already performed the song 'Beauty for Brokenness' as part of One World Week in October and they sang it again at the end.

"Rest for the ravaged earth,
Oceans and streams,
Plundered and poisoned,
Our future, our dreams.
Lord end our madness,
Carelessness, greed,
Make us content with
The things that we need."

[From 'Beauty for Brokenness' by Graham Kendrick, for Tear Fund.]

They performed six short drama sketches which they had written and with which we had some help from our drama specialist. These sketches showed various aspects of drug abuse in the UK [for instance rave parties and cheating with steroids in sport] and culminated with a longer sketch based on an article in the *National Geographic* journal, concerning a raid by Federal Agents using helicopters on a jungle clearing in Colombia. The agents had spotted an illegal coca plantation. They portrayed the hopes of the wife of the peasant farmer as she surveyed her crop and talked to her children about being able to give them clothes and schooling. Then they showed her hope turned to anguish as she watched the agent set fire to her coca plants, as she cried "What shall I tell my husband?".



A coca plant

The children wrote their own ending for this play which I found very interesting and revealing. "The farmer and his wife started growing food instead and everything was all right." We then discussed the difficulties given that nothing else compares with the lucrative sale of coca. The children were fascinated to see how money is the overriding motive throughout the whole journey of drugs, from plants to street.

The children gained a lot from the project. Our local beat bobby has become involved because he hoped to use our findings to supplement Birmingham's anti-drug squad's resources for school work.

Exploration and encounters

Year 4

Plant/s or environments we used

The plant we were studying was the cacao tree, from which cocoa is made. In particular we looked at the cocoa crop produced around Accra in Ghana [all Cadbury's cocoa beans come from this area]. Many of the children at our school have family connections with the Cadbury factory in Bournville, Birmingham, so we were looking at the way the plant links the two communities.

What we did on the visit

The children studied examples of all the plants which the Tudor and Stuart explorers brought back. They discussed the uses of the spices and found out about growing the cocoa plant. They completed a discovery trail and filled in an explorers' diary.

What we did in the classroom

In history we studied the plants brought back from the New World by the renaissance explorers and their importance as food stuffs. We twinned with a primary school in Ghana and raised some money towards refurbishing their classroom. We used a video supplied by Cadbury. A teacher from a Ghanaian school gave us a talk illustrated by photographs.

The development issues we addressed

Natural We talked about the work being done by Cadbury to improve the plant stock and make it more resistant to pests and disease.

Economic and Social We focused on the economic and social issues which shape the lives of the cocoa growers of Ghana and the economic links with Bournville. We touched on the fact that many cocoa growers had never tasted the chocolate we eat in the West and also on the steps being taken to stabilise the price of cocoa to protect the workers from price fluctuations.

How it fits into the National Curriculum

History,
Geography,
Science,
Technology,
English.

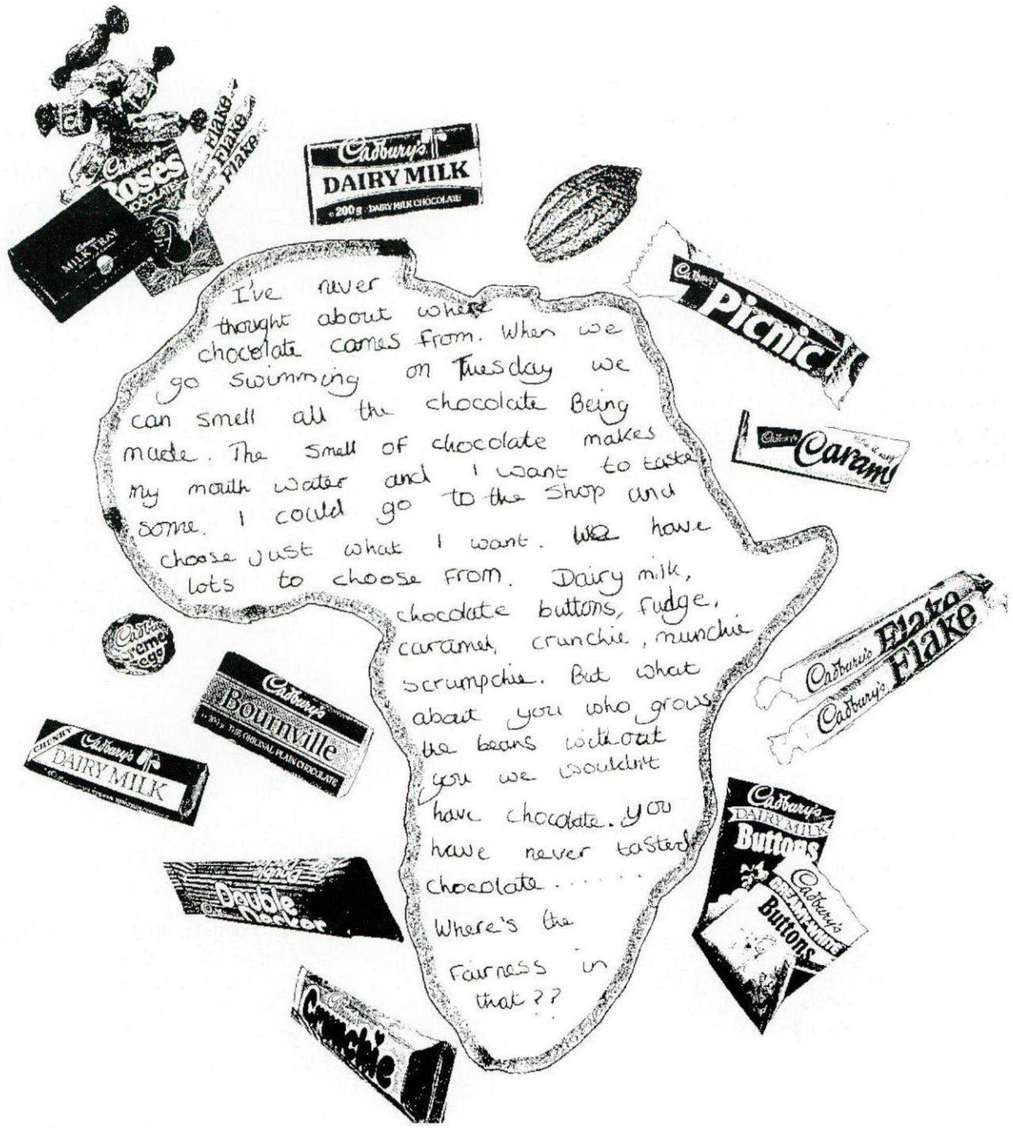
Resources

Cadbury's education pack and **Cadbury World souvenir brochure**, from Cadbury, Linden Road, Bournville, Birmingham B30 2LD.
Where camels are better than cars, DEC, 1992.
Eritrea - Africa's newest country, Ruth Lewis, Christian Aid, 1993.

Case study

Cocoa: one crop, two communities

We watched a video of a *Jim'll fix it* programme of a young girl who had been taken to Ghana to see where chocolate came from. We saw how the people in a village near Accra lived and worked growing cocoa. We saw how everyone in the village worked together to harvest the cocoa. We saw their homes, the children in school and how they lived. We used photographs, provided by a teacher who had worked near Accra in Ghana when doing VSO and thought about the differences between the people growing and picking the cocoa beans compared with the lives of the people working in the chocolate making factory in Bournville. Finally we talked and wrote about the ways in which the Ghanaian community of Accra was linked to our community of South Birmingham by the cocoa plant.



Victorian plant hunters

Year 5

Plant/s or environments we used

We looked at plants which were deliberately introduced to this country by the plant-hunters from Victorian times to the present.

What we did on the visit

The children looked at plants all over the garden, including glasshouses, and noted their country of origin by reading the information labels. We looked particularly at a collection of plants introduced to this country by E. H. Wilson, who introduced approximately 1000 plants to Europe, mainly from China. We read extracts from accounts of expeditions by the plant-hunters of the past.

What we did in the classroom

We looked at maps of the world to trace where plants originated. We found information on Victorian plant-hunters and investigated which plants they introduced and who paid for their expeditions. We then compiled lists of questions and sent them to people involved in plant collecting today, emphasising the reactions of the indigenous population and their attitudes to collectors.

The development issues we addressed

Natural What are the effects of plant collecting on the natural environment?

Economic There were questions about ownership of the plants growing in a country. What is the value of these plants [medicinally, as a source of genetic material, etc.] and who should benefit financially from these plants?

Social What were the attitudes of the plant-collectors of the past to peoples in the countries they visited? What are the relationships between people collecting plants today and the people they encounter on their expeditions?

How it fits into the National Curriculum

History,
Geography,
English.

Resources

Green inheritance,
[see Resources section, page 46].

Case study

Plant hunters today: who benefits?

We read a lot about the relationships between the plant hunters of the past and the people they met in the countries they visited. We wanted to know if present day relationships were different and what people's attitudes were now. The children wrote to botanic gardens which organise plant hunting expeditions and also to individual plant collectors. These were some of the questions:

Is it really important to collect new plants? If so, why?

How much money are you paid to collect plants from other countries?

Which countries do you visit?

Where do you live on your travels?

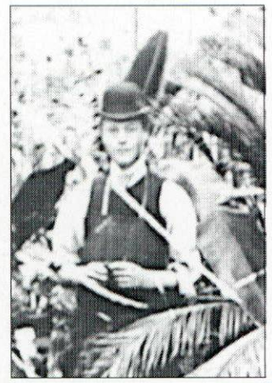
What equipment do you take?

What do you eat?

How long do you stay in each country?

Where do you get the food?

What problems have you ever had?



Is it easy to collect plants?

Have you ever been hurt while you were collecting plants?

What are the people like who you meet?

When you go plant-hunting do the people in these countries look after you?

How do you look after the plants you have found while you are travelling?

When you go to a place where you haven't been before, what do the people think of you?

Are you allowed to take anything that you want?

Photograph: E. H. Wilson, a Victorian plant-hunter.

Britain since 1930

Year 4

Plant/s or environments we used

At the Botanical Gardens we looked at the nurseries, where we saw seeds, seedlings and larger plants. We looked at the bonsai trees in the Japanese garden. We also visited Ashram Acres, an organic allotment in Sparkbrook, Birmingham and saw vegetables and herbs: garlic, radish, broad beans, coriander, fenugreek, mustard.

What we did on the visit

In the nursery we looked at methods of growing and propagating plants. In the Japanese garden the bonsai trees were a focus for the children to make peaceful pencil drawings. At Ashram Acres, the children planted seeds, saw seedlings growing outside and in polytunnels. We saw organic compost and fed hens, ducks, goats and rabbits.

What we did in the classroom

Wartime rationing and the growing of food in Britain led to a discussion about self-sufficiency and the use of land. We played 'the shamba game' from *New journeys*. This enabled the children to explore some of the choices facing people in Kenya who have to grow food both for their families and to sell. We discussed the difficulties that the Kenyan farmers have in providing food for their family compared with our lives in Britain. We identified facts about farming in Pakistan and Bangladesh to be used in our own game.

The development issues we addressed

Natural We explored the effect of climate on people's lives, different people's dependence on land and the constant threat of hunger.

Economic Self-sufficiency, ownership of land, paying for medicine, the dilemma of food versus cash crops, restrictions on trading by richer nations. We started to talk about the huge problem of the international debt crisis.

Who decides? The power of people with lots of land and the powerlessness of those without land, at the mercy of the climate. The children suggested many interesting ways in which they and the wealthier nations could help. The game also raised peace issues.

How it fits into the National Curriculum

History,
Science,
Geography,
English.

Resources

New journeys, Birmingham DEC, 1991.
Food matters, Birmingham DEC/Trocaire 1992.
We are what we eat - but who controls our choice?, UNICEF, 1989.

Case study

People and land in Brazil

This game from the Christian Aid leaflet, *Going, going, gone* was an excellent stimulus for raising development issues in a real situation. In the game the children are farmers in Brazil. Pieces of paper [numbered 1 to 10 in the diagrams] represent land which has belonged to their families for generations. Year 1 passes with the families able to feed themselves. Before the harvest in year 2 the children have to pick up event cards, most of which spell disaster. To cope with this, the family have to sell land to richer farmers. The diagrams at the end of years 2 and 3 indicate how land has been redistributed, resulting in the poor surviving on less land.

The game was simple to do but resulted in amazing comments from the children [see below], some quite intense arguments and suggestions of ways to help people. There was plenty of scope for ideas and wonderful opportunities for learning for the children in terms of issues, knowledge and language. The land game caused great consternation when people's lives were changed. The children gasped as land was redistributed and people had to move to stay with relatives and friends. At the end, tremendous arguments followed as the family with most of the land defended their position very strongly.

The game is available free from Christian Aid's Education Sector [see page 48 for address].

Illustration from *Going, going, gone.* [Ruth Lewis, Christian Aid]
Quotations are comments made by children while playing the game.

Nuts

Year 3

Plant/s or environments we used

Our school is in Hazel Street and the neighbouring streets are all named after nuts, so we decided to use nuts as our starting point. We were particularly interested in filberts, walnuts, brazils, and hazelnuts.

What we did on the visit

We had a whole day for the visit to the botanic gardens. From staggered starting points, groups searched for nut trees marked on a map of the gardens. Later we photographed and carefully drew the best specimens.

What we did in the classroom

We studied old maps to find out when the streets around school were built. From current maps, we identified streets named after nuts. We focused on Brazil Street as a useful starting point for exploring issues around the production of brazil nuts. We found out more about where brazil nuts come. Through Christian Aid, we met a Brazilian woman who worked in a nut factory, and with her, we discussed the economic and physical hardship of this work.

The development issues we addressed

Natural We explored some issues about the conservation of the tropical rainforest.

Economic We discussed the economics involved in growing and trading brazil nuts and the poor returns for people in Brazil.

Social We learnt about the lives of the Kayopo tribe and the threats they are experiencing at the moment. We discussed harsh working conditions in brazil nut factories and inequalities in wages for men and women.

How it fits into the National Curriculum

Geography,
Science,
History,
English.

Resources

Peter's visit to the rainforest [in English and Bengali], Roditi, Parrot, 1991.
Children of the loom, Christian Aid, 1994.

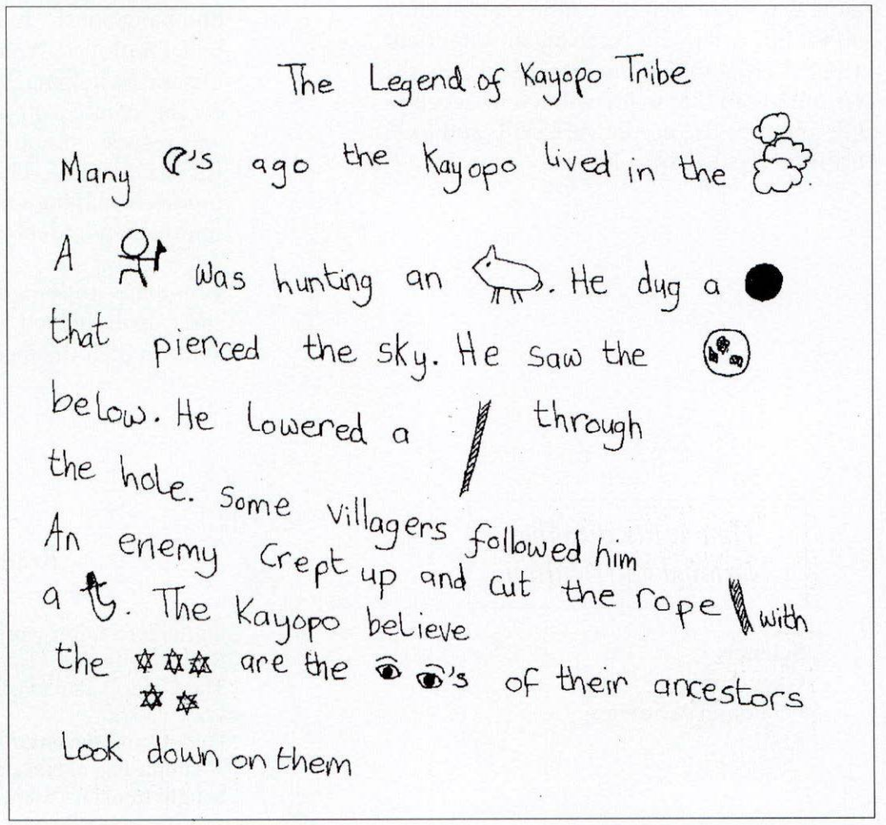
Case study

Brazil nuts: forest and factory people

As part of our project on nuts, we found out about the lives of the people who are involved in the production of brazil nuts.

First we discovered that they are planted and harvested by the Kayopo tribe, which is indigenous to Brazil's rainforests. The lifestyle of the Kayopo people is endangered because of the destruction of the rainforest. Children wrote illustrated accounts of the legend of how they came to live on earth. A freelance lecturer spoke to us, and using film, animals, and artefacts, gave a vivid account of life in the rainforest and the threats facing people like the Kayopo.

We then looked at the next stage of nut production. After being harvested, the nuts are taken to factories, where they are steamed open. Maria, a Brazilian factory worker who visited our school, told us it is hot and noisy work. She starts at 6 a.m. and finishes when it is dark. We learnt that this work is done by women, as they are cheaper to employ than men. We talked about some of the lower paid jobs that are often done by women in Britain. The children came up with a list, which included over-lockers in garment factories and women who serve school dinners. We discussed the fact that this work was often undervalued as it was low paid. The children agreed it was unfair that women's wages were often lower than men's, and we realised that this inequality existed in many countries.



Materials

Year 6

Plant/s or environments we used

We examined a variety of economic plants which are harvested for food and for materials used in the manufacture of a range of products. We looked particularly at plants used in creative and effective ways in developing countries to make shelters, roofs, containers, cloth, dyes, etc.

What we did on the visit

We looked at samples of raw materials such as rubber, sisal, cotton, kapok, coir, timber, and at handmade products, e.g. musical instruments. The children made detailed drawings of plants and discovered which products we get from different parts of plants, e.g. the leaf, root, fruit, stem, seed, bark and flower. They noted the countries of origin and the climate.

What we did in the classroom

We looked at waste and recycling of materials in Britain, especially Oxfam's Wastesaver project. The children were inspired by this to start using recycling banks. We decided to explore ways in which the cotton plant is fully utilised in Asia, with recycling an important aspect. From Oxfam literature and parents, we found out that many women in developing countries use needlework skills and local textile waste, to earn a living.

The development issues we addressed

Natural/Who decides? The focus was on women's co-operatives, especially in India and Bangladesh. In Ahmedabad, India, the Self Employed Women's Association and Oxfam are helping women to get a fair price for the 'chindi' cotton waste they buy, clean and recycle into quilts, in order to support their families. The formation of trade unions is helping to reduce exploitation by middlemen traders who make huge profits.

Economic In Bangladesh, women recycle saris, again helped by Oxfam, who market some of their distinctive textile goods.

How it fits into the National Curriculum

Science,
Geography,
Economic Awareness,
P.S.E.

Resources

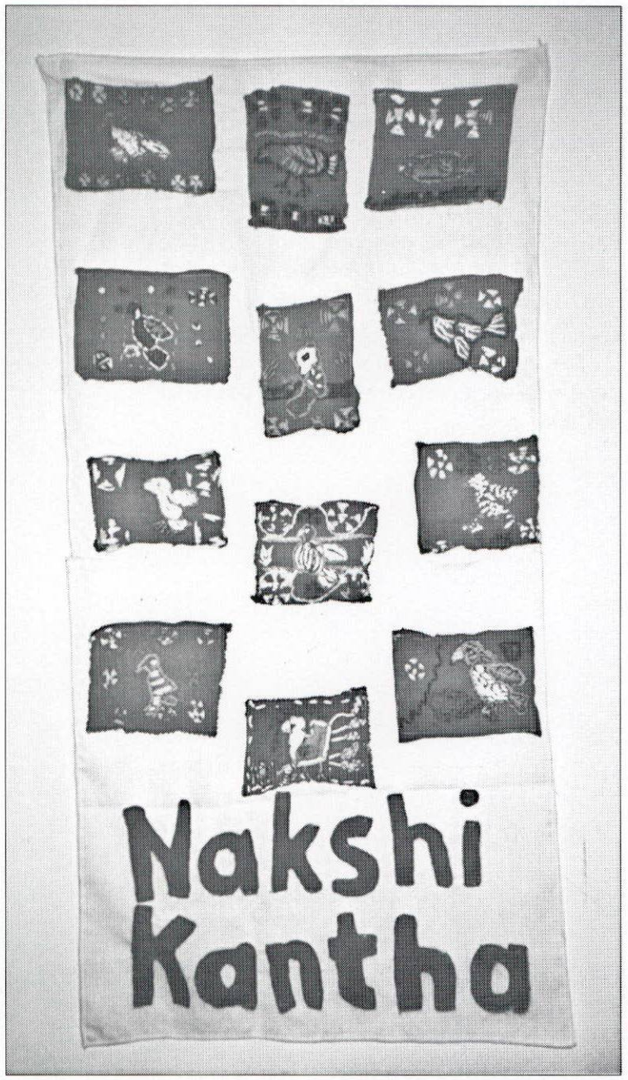
Quilts for a fairer world, Oxfam, 1992.
Recycling leaflet, Oxfam.
The Edge, Oxfam magazine No.13, Winter 1991.
Poverty and the environment leaflet, Oxfam.
A sample bag of Nakshi Kantha embroidery bought from an Oxfam shop.

Case study

Recycling cotton waste through embroidery

One week was devoted to the study of the recycling work done by women in Bangladesh, based on information gleaned from parents and from Oxfam. Some parents had witnessed discarded dhotis and saris being collected by women's co-operatives in villages. The cloth remnants are washed in the river, dried and sorted for re-use. The embroidery is unpicked from the hems of old saris and the threads saved to be sewn on to new quilts and cushion covers. Pieces of clean fabric are quilted together with close, tiny, running stitches and then covered with a traditional style of embroidery called 'Nakshi Kantha'. The designs tell stories and depict scenes from life in Bangladesh including people, plants and animals.

While some children role played the process of collecting, recycling and bargaining fair prices, another group made a small quilt, choosing a theme of birds and flowers and bright colours which express hope and happiness. They designed and sewed the quilt over two afternoons, using scraps of old saris. They looked at the selling prices of real 'Nakshi Kantha' work sold in Oxfam shops. They felt that the women's skills and the intricate hand embroidery deserved far more financial reward, whilst appreciating that Oxfam was working to ensure that the women get fair prices for their work.



Quilt made by children in the style of Bangladeshi Naksi Kantha.

Changing soils

Year 5/6

Plant/s or environments we used

We looked at a variety of plants which grew in humid or arid conditions to see what techniques they had evolved in order to survive. We looked at the differences in soils and also explored the concept of the compost heap to see how plant material is naturally recycled.

What we did on the visit

We looked at the soils in the tropical and desert houses, paying attention to colour, texture, smell, particle size, organic content and moisture. We looked for trees and plants which had evolved special survival techniques in poor soil e.g. banyan, cacti. We did some sensory work in both humid and arid environments. We visited the gardens' compost heaps to look at recycling of organic matter.

What we did in the classroom

Before our visit we found out as much as we could about the Amazonian rainforest and indigenous groups, such as the Yanomami. We discovered how dependent their lifestyle is upon the environment. We discussed what makes a 'successful environment'. We talked about soil and examined local soil samples. On our return, we experimented with sand trays and water to show what happens to soil when it rains.

The development issues we addressed

Natural We looked at the conservation of land, soil erosion and soil management. We examined how plants have evolved survival techniques in shallow or inadequate soils.

Economic Much of the rainforest in Brazil is being cleared to provide acreage for farms. Farmers clear the land but find they need to artificially replace natural recycling. Fertiliser purchase is a constant drain on their resources.

Social We looked at the changes in lifestyles affected by land clearance.

Who decides? We looked at financial restraint as a means of governing.

How it fits into the National Curriculum

Geography,
Science,
Economic and Industrial Understanding,
Citizenship,
English,
Maths,
Art.

Resources

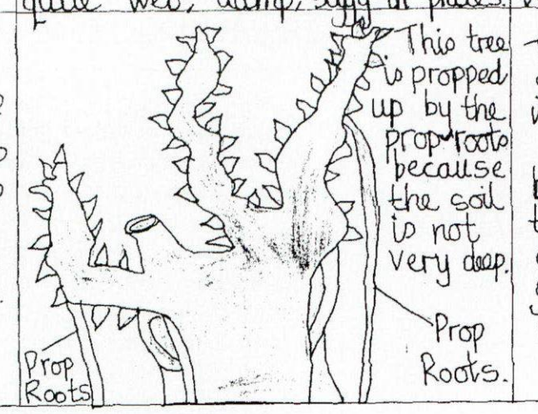
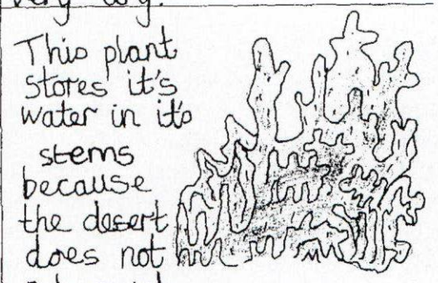
Questions - Investigating soils, Vol 6, Issue 1.
A rainforest child, Sue Lyle and Maggy Roberts, Greenlight Publications, 1992.
Indigenous people in development in the Amazonian rainforest, ActionAid.

Case study

Protecting the future

The children explored the different soils at the gardens and presented their findings in tabular form. They discovered plants which had evolved definite survival techniques in poor soil. They then added their feelings about the effects of human activity on soil.

A child devised this table. We were not looking at real tropical soil; different soils were used to provoke discussions.

	Tropical	Desert
Colour	Black, dark brown.	Grey, very light brown.
Texture	crumbly, soft.	powdery, stony.
Smell	Rotting wood, earthy, spicy	musty, spicy.
organic matter	roots, leaves, dead flower's, stems	none seen.
moisture	quite wet, damp, soggy in places.	very dry.
Draw and describe features of the plants which help them to cope with the soil.		

Human Activity

Some people, like the Yanomami Indians, have always lived as a part of the forest. They only ever take as much from the forest as they can replace. Recently other people have moved to the Amazon and don't live as part of the forest. They keep opening up new areas of land to farm. To do this, they have to cut down trees. When the rain comes down, its washes away the soil, because there are no trees to protect it.

The Banyan tree

Year 5

Plant/s or environments we used

We studied the banyan tree and the bo-tree. The banyan originates in India and Africa and is grown mainly for shade and shelter, because it produces prop-roots and spreads over a very wide area. It is a Hindu sacred symbol of marriage. The bo-tree [peepul or pipal tree] which grows all over Asia is sacred to Buddhists and Hindus.

What we did on the visit

The children studied trees in general. They measured the height and girth of various trees, described the bark and leaves, and drew them. They tried to discover the use of each tree, by looking for fruits, discussing the ornamental value, and by reading information labels on the tree, e.g. rubber tree.

What we did in the classroom

The children built up a database of the information they had gained on trees. They were given information about the roles of trees in religious and cultural tradition, and discovered the significance of the banyan and bo-tree in particular. They then took part in role-playing exercises where villagers in India wanted to save their banyan tree from being cut down by local developers.

The development issues we addressed

Economic We talked about the financial pressures which affect community decisions about development.

Social We explored how groups of people might come together to make decisions about their community, and some of the conflicts that might arise.

Who decides? This work focused on who makes choices about the future of a community and who has no say, how decisions are made and who benefits and who loses, and why.

How it fits into the National Curriculum

English,
R.E.

Resources

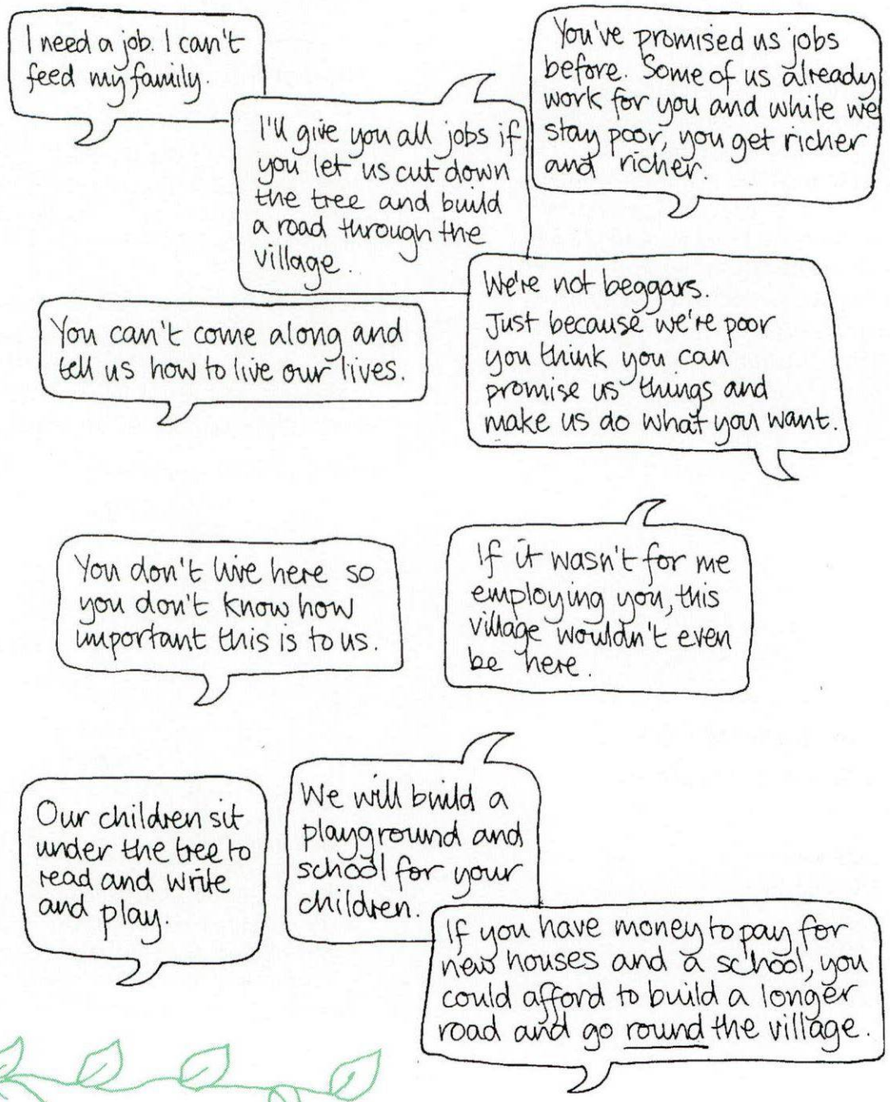
The Tree in the Moon, Rosalind Kerven, Cambridge University Press, 1989.

Case study

Who decides about development?

We set up an imaginary situation for a role play, to explore issues about decision making and development. The children were told that there was a small village in India with a very large, old Banyan tree growing in it. The tree was used by the villagers as a meeting place; they tethered animals under it in the heat of midday; the children were taught in its shade and played in and under it, and it was used as a focus for religious ceremonies. A group of local business people wanted to build a road through the village, necessitating the removal of this tree and also one or two houses. Some of the villagers were already employed by the developers and others were promised work if the road went through. The children were asked to choose sides and argue for and against the removal of the tree.

The children became very involved in the discussion and requested several further sessions in order to continue the discussion until it was resolved and a decision made. These are some of the things they said:



Trees in our coppice

Year 4

Plant/s or environments we used

We looked at trees in the school's environment which are not native species, i.e. they have been introduced to this country from other parts of the world. They have adapted so successfully that they are now widespread and in some cases naturalised. The trees included garden favourites from every continent.

What we did on the visit

Our activity was called 'around the world in 80 minutes'. The children were given two maps of the world: one with the countries marked, and one without. They had to find a tree from every region of the world, including all of the trees on our trail. They had to name the tree, find some information and sketch it.

What we did in the classroom

The children followed a tree trail, locating and identifying the trees. They measured the trees, took bark rubbings, studied the twigs and briefly described their features. We wrote stories and poems about trees. We investigated how adaptable trees were to climate. We talked about threats to trees from pollution such as acid rain and deforestation. We looked at examples from here and around the world especially in South America, Asia and Africa.

The development issues we addressed

Natural/Social We focused on questions about our natural environment; how we could sustain our forests, and the movement of people as well as trees.

Economic We also looked at the economic reasons for the trade in wood - particularly the slash and burn policy in South America where forests are being deliberately destroyed for grazing land and cattle.

How it fits into the National Curriculum

Science,
Geography,
English,
Maths,
Art.

Resources

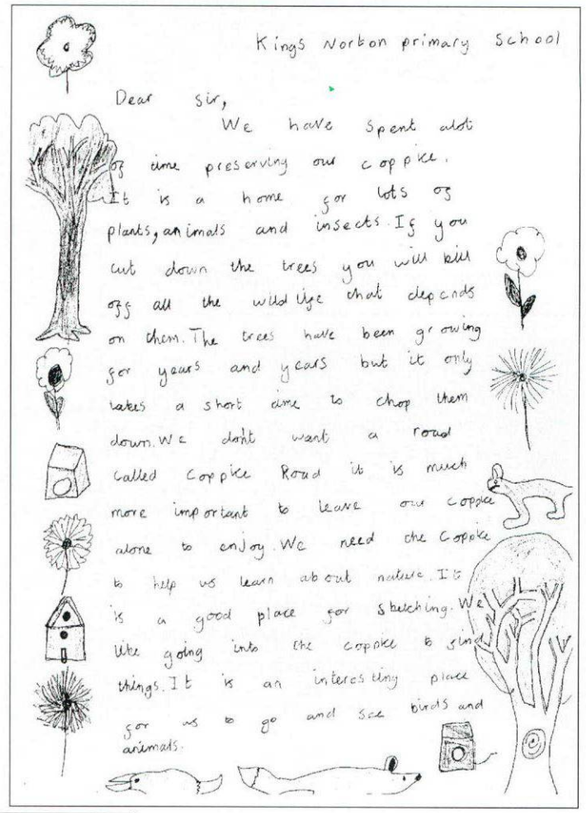
Green inheritance, [See resources section, page 46]
The people who hugged the trees, Deborah Lee Rose, Roberts Rinehart, 1994.
Tree folklore and superstition, Fare and Bell, The Polytechnic of North London, 1990.

Case study

It takes a lifetime to grow...

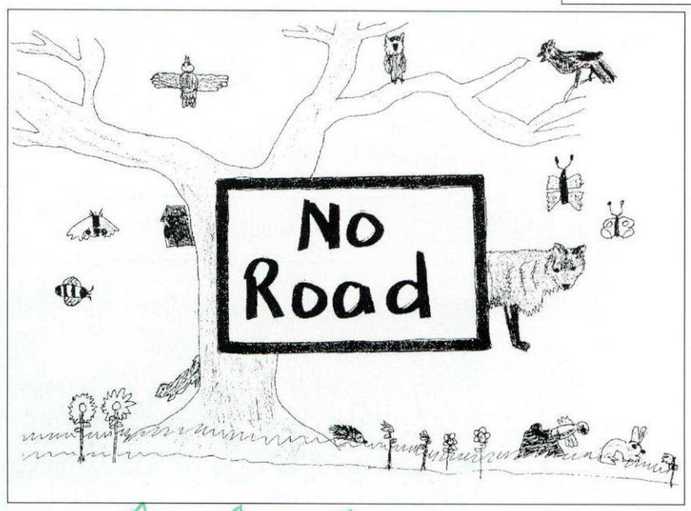
Our work on trees concentrated on the study of our coppice. This was a wild derelict area of woodland [4.5 acres] behind our school. We have taken over this area of woodland and are managing it. We have spent a lot of time and effort in clearing the area of rubbish, making paths, building a hedge, planting bulbs and thinning trees. The children are very protective towards their coppice and it has become a very valuable resource for our school.

We watched ecology protesters in 'Wanstonia' (Wanstead, in east London) being dragged from the tree tops by cranes so that the road developers could complete yet another new motorway. I told the children the story of the Chipko movement and Amarita Devi who was trying to protect trees in India almost two hundred and fifty years ago. The children were then asked to imagine how they would feel if a road was to be built through their coppice. Letters of protest were written, posters and banners were made. They wrote and performed a school assembly for parents. 'It takes a few minutes to chop a tree down, but it takes a lifetime for a tree to grow'.


Kings Norton primary School

Dear Sir,

We have spent alot of time preserving our coppice. It is a home for lots of plants, animals and insects. If you cut down the trees you will kill off all the wild life that depends on them. The trees have been growing for years and years but it only takes a short time to chop them down. We don't want a road called Coppice Road it is much more important to leave our coppice alone to enjoy. We need the coppice to help us learn about nature. It is is a good place for sketching. We like going into the coppice to study things. It is an interesting place for us to go and see birds and animals.



Harvest

Years 1-3

Plant/s or environments we used

We looked at the ingredients needed to bake a 'whole world cake', which contains foods from around the world. We looked at: bananas, vine fruits, sugar cane, pineapples, cacti, nut trees, coconuts, wheat, and ginger.

What we did on the visit

We split up into small groups and did a treasure hunt around the botanic gardens. We had prepared 'goodie bags' and hidden them around the garden in plants and trees. On the hunt, the children had to track down certain trees and plants; when they found them, they could eat the food in the goodie bags. Afterwards the children drew the ingredients.

What we did in the classroom

We looked at some of the cake ingredients that we'd bought in a health food shop. We noted the county of origin of the foods and marked them on a world map. As one of the ingredients was brazil nuts, a woman who used to work in a nut factory in Brazil came to talk to us about working conditions in the factories. We baked a 'whole world cake' and did an assembly for parents. It included plays about how and where the food crops are grown and how they reach our shops.

The development issues we addressed

Natural The destruction of the rainforest.

Economic/Who decides? Brazil nut production and working conditions in factories; how food crops are grown in 'third world' countries and the processes the food goes through before we eat it.

Social We looked at photos from Eritrea of a child picking cacti to feed cattle.

How it fits into the National Curriculum

Geography,
Science,
Art.

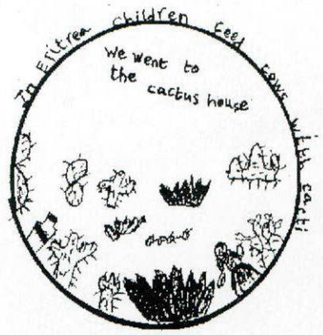
Resources

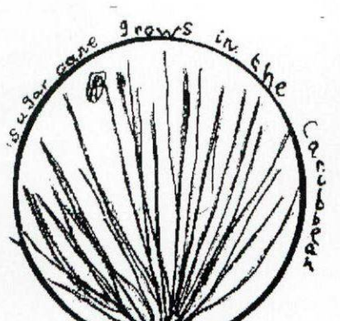
Whole world cake [see Resources section, page 46]
Living on islands, B. Marsden, Oliver and Boyd, 1991.
We live in Trinidad, Donna Bailey, Heinemann, 1991.
Eritrea - Africa's newest country, Ruth Lewis, Christian Aid, 1993.
Solomon's secret, Saviour Pirotta, Little Mammoth, 1992.

Case study

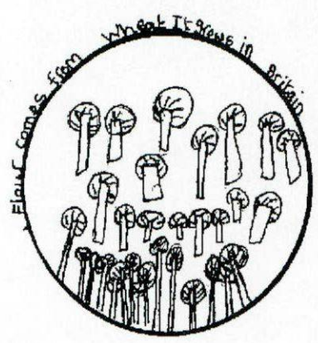
A whole world cake

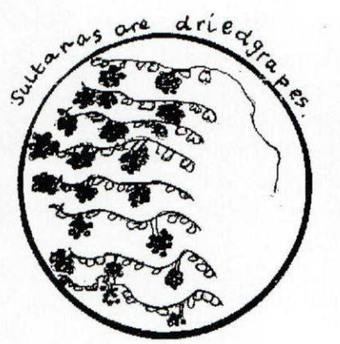
The idea for baking a whole world cake came from the book of this name. We looked at familiar, everyday foods, such as sugar, and then investigated more about them: where they are grown, who grows them, and how they reach the UK. The children were able to see most of the ingredients of the cake during our visit to the botanic gardens and drew them afterwards. They also drew cacti because we found out that in Eritrea cows [which produce milk, one of the cake's ingredients] are fed cacti!

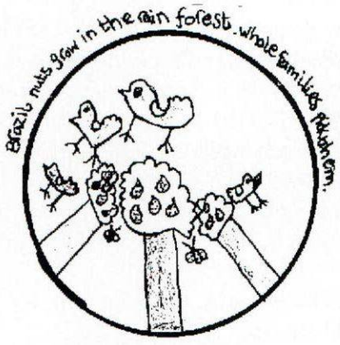


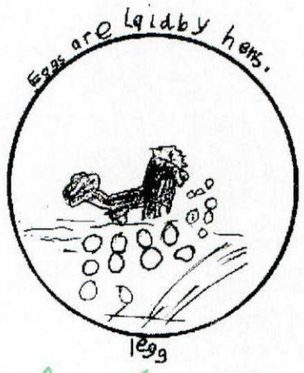














Resources

Botanic gardens and arboreta of Britain and Northern Ireland, available from Botanic Gardens Conservation International.
This directory outlines the location and facilities available at 58 botanic gardens and arboreta.

Gaia atlas of planet management, Norman Myers, Pan Books, 1985.
A guide to environmental issues facing our planet - threats, opportunities, and strategies for action. A superb resource for teachers.

Green inheritance, Anthony Huxley, WWF & Gaia Books Ltd, 1984.
Full of colour illustrations and photographs of plants around the world. It looks at the potential of plants as fuel, food, and medicine.

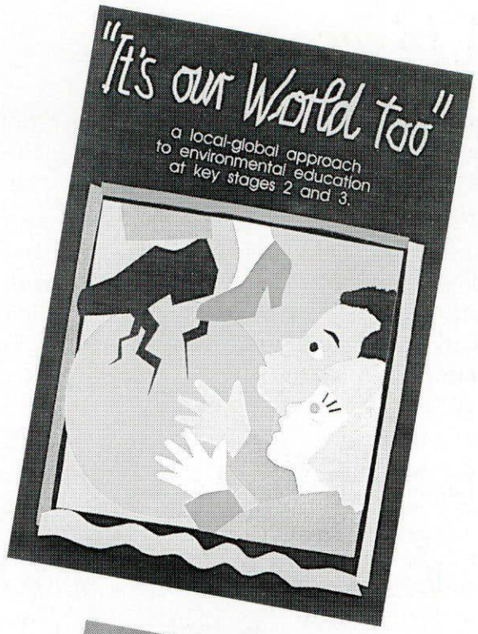
Green inheritance teaching pack, WWF/Botanic Garden Network, 1991.
Following on from the above book, these two teachers' packs look at plant conservation issues, drawing on the educational value of botanic gardens. They contain background notes, activities and a wallchart, and are for use with 9-13 year olds.

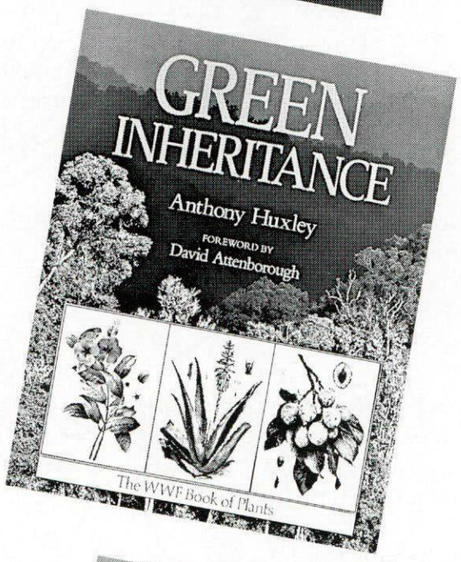
"It's our world too", Birmingham DEC in partnership with South Yorks DEC and UNICEF, 1992.
This teachers' handbook offers a new approach to understanding the relationship between environmental issues in our own locality and those facing people in other places. This approach is illustrated by practical local-global activities. Examples are given for planning cross-curricular themes, fieldwork, special events and devising policy.

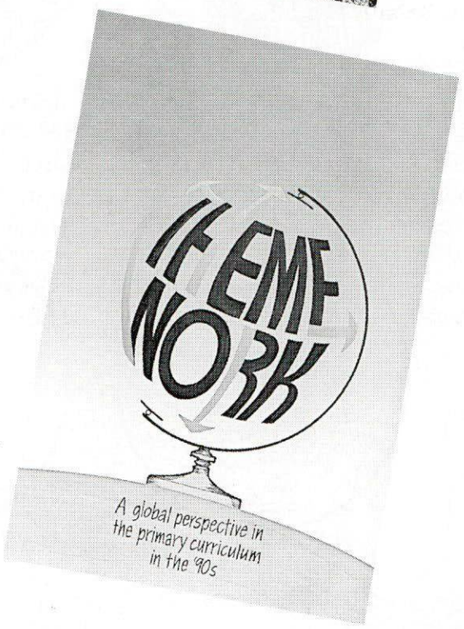
Plants for people, Anna Lewington, Natural History Museum, 1990.
Traces plant-derived materials, found in everything from car tyres to toothpaste, back to their roots and presents some of the countless and often surprising ways in which we use plants every day.

Theme Work - *a global perspective in the primary curriculum in the 90's*, Birmingham DEC, 1991.
A handbook of active learning activities for teaching about our own locality and other places. It offers a range of approaches and resources for introducing a global dimension at Key Stage 2.

Whole world cake, Christian Aid, 1994.
A collection of ideas for work with groups, starting from a cake made with ingredients from around the world.







Addresses

There are a wide number of organisations which could offer support for your project.

Botanic gardens

Full details of where to find botanic gardens are available from the two addresses below:

Botanical Gardens Base
Birmingham Botanical Gardens
Westbourne Road
Edgbaston
Birmingham B15 3TR.

This book was produced in partnership with the Botanical Gardens Base. The base is also the address for the Botanic Garden Education Network. BGEN links botanic gardens and arboreta in the UK. Its members provide opportunities for school groups to use collections of plants for educational activities. Contact the Education Officer at the Botanical Gardens Base for details.

Botanic Gardens Conservation International
Descanso House
199 Kew Road
Richmond
Surrey TW9 3BW.

A global network of botanic gardens for conservation. It provides technical guidance, data and support to enable gardens to meet their conservation challenges.

Royal Botanic Gardens
Kew
Richmond
Surrey SW9 3AB.

The Education Section has a range of resources for schools, including the Kew Gardens Bus, a travelling resource for schools. It visits teachers' centres and botanic gardens, showing how plants can feature across the school curriculum. To book the bus, contact the Outreach Education Officer at Kew.

Development Education

Development Education Association [DEA]
3rd floor
29-31 Cowper Street
London EC2A 4AP.

The DEA is an umbrella organisation for those interested in development education. They can supply addresses of local Development Education Centres [DECs] and development/aid agencies. The two DECs involved in this project are:

Development Education Centre [Birmingham]
Gillett Centre
998 Bristol Road
Selly Oak
Birmingham B29 6LE.

DEC produces a range of materials on development education across the curriculum and across age groups. Send for a publications catalogue.

Leicester World Development Centre
10a Bishop Street
Leicester
LE1 6AF.

Other useful sources

The Black Environment Network [BEN]
Regents Wharf
8 All Saints Street
London
N1 9RL.

Aims to raise cultural involvement in environmental projects. They can supply information about setting up cultural gardens.

CAFOD
2 Romero Close
Stockwell Road
London SW9 9TY.

Supplies development education materials. Send for their education catalogue.

[more addresses over the page . . .]

Centre for Alternative Technology [CAT]
Llwyngwern Quarry
Machynlleth
Powys SY20 9AZ.

Focuses on organic food and gardening. A useful place to visit.

Christian Aid
PO Box 100
London SE1 7RT.

Supplies development education materials. Send for their education catalogue.

Council for Environmental Education [CEE]
School of Education
University of Reading
24 London Road
Reading RG1 5AQ.

Offers a newsheet on new resources, events and publications related to environmental education.

Friends of the Earth
26-28 Underwood Street
London N1 7JQ.

Has useful background material on timber and rainforests.

Knock on Wood
Multicultural Music Supplies
Granary Wharf
The Canal Basin
Leeds LS1 4BR.

Supplies a wide range of musical instruments made from natural materials and coming from all parts of the world.

Oxfam
274 Banbury Road
Oxford OX2 7DZ.

Supplies development education materials. Send for their education catalogue.

Oxfam Trading
PO Box 72
Bicester
Oxon OX6 7LT.

Materials from their gift catalogue and in Oxfam shops may stimulate and support work on using plants to create items for trading.

Rainforest Roadshow
David Shaw
Shady Rock Cottage
Bromsgrove Road
Clent
West Midlands
DY9 9QB.

Offers visits to schools with animals, insects and artefacts from the rainforest.

Save the Children Fund
Mary Datchelor House
17 Grove Lane
Camberwell
London SE5 8RD.

Supplies development education materials. Send for their education catalogue.

SOS Sahel
1 Tolpuddle Street
London N1 OXT.

Free facts sheets on the Sahel region and materials on afforestation and deforestation.

Traidcraft plc
Kingsway
Gateshead
Tyne and Wear
NE11 ONE.

Sells fairly traded crafts and food products. More educational information and materials for loan from Traidcraft Exchange at the same address.

WATCH
The Green
Witham Park
Lincoln LN5 7JR.

A club for young people aged 8-18, sponsored by RNSC. It runs conservation projects and has a magazine.

World Wide Fund for Nature [WWF]
Panda House
Weyside Park
Godalming
Surrey GU7 1XR.

Offers a teachers' newsletter, resources and education catalogue on a wide range of environmental educational issues.

Acknowledgements

Around the garden in 80 ways was produced by the Development Education Centre [Birmingham] in partnership with Birmingham Botanical Gardens Base.

We would like to thank all those who have contributed to the book:

Bill Graham, Birmingham Botanical Gardens Base, who was project co-ordinator

Birmingham teachers:
Pat Cooke, Meadows JI school
Lisa Fletcher, Nelson Mandela Community JI school
Julie Fox, St Mary's C of E JI school
Peter Fry, St Thomas C of E JI school
Jo Jones, Boldmere Junior school
Diane Kearns, Canterbury Cross JI school
Susan Londesborough, Conway JI school
Vicki Long, Highfield JI school
Arnold Marchant, Boldmere Junior school
Wendy Palmer, Greet JI school
Pam Ramsey, Kings Norton JI school

Leicester teachers:
Sue Baughan, Leicester World Development Centre/Christian Aid
Norman Machin, Hazel Primary school
Viki Mayes, Townlands Primary school
Paul Patience, Longslade Community College
Sue Rickerby, Imperial Avenue Infant school

We would also like to thank the following people who participated in the project:

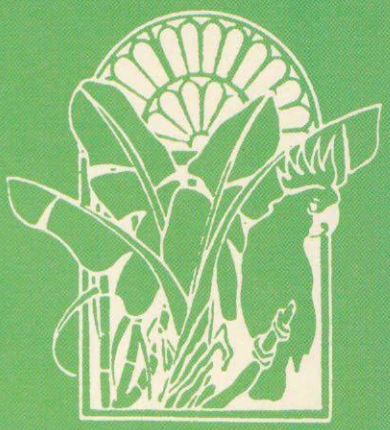
Sue Bird, Birmingham Botanical Gardens
Dr Ian Darwin Edwards, Royal Botanic Garden, Edinburgh
Dr Richard Gornall, Leicester University Botanic Garden
Ray Jones, Canterbury Cross Primary School
R.A. Lass, Head Agricultural and Environmental Affairs, Cadbury
June Laws, Greet JI School
Gillian Longhurst, Highfield JI School
Ian Nex, Birmingham Botanical Gardens
Len Salt, Birmingham Botanical Gardens
Judith Weltman, Ashram Acres

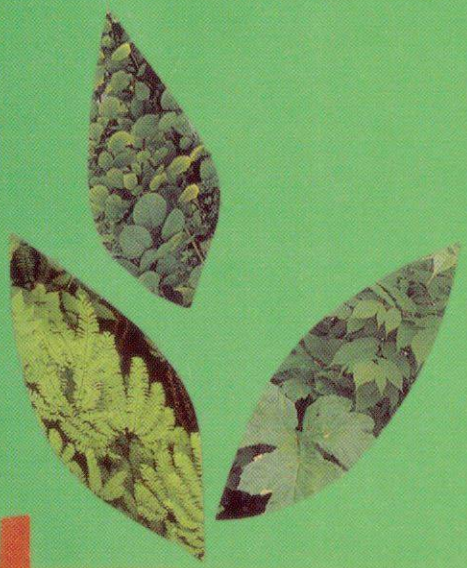
The support and development of the project was shared between Catherine McFarlane, Rose Welshman and Scott Sinclair supported by the staff at the Development Education Centre.

Cover design by Petra Rohr-Rouendaal

Photo credits: pages 6 and 9 - Susan Londesborough
page 8 - Catherine McFarlane and Bill Graham
page 31 - Birmingham Botanical Gardens

Copyright: A world without rainforests, from *A rainforest child* [page 15]; the story of a pair of jeans, from *Hanging by a thread* [page 23]; and the game *Going, going, gone* [page 35] are all reproduced with the permission of the authors and publishers.





Around the garden in 80 ways is an innovative approach to exploring development issues. Written by teachers, the book uses plants as a starting point for introducing a global dimension to the primary classroom. The examples show how botanic gardens can stimulate exciting cross-curricular work at Key Stage 2.

Development Education Centre [Birmingham]
in partnership with
Birmingham Botanical Gardens Base

