



Tropical Rainforests and Us

Wild About Monkeys!

Conservation Crazy!

Key Stage 2

Teacher Notes



Protecting primates and habitats worldwide

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Aims of the pack

To facilitate the study of the following learning objectives by pupils:

1. To learn about the Tropical Rainforest, its wildlife and its human inhabitants and compare it to life in the UK
2. To learn about Monkeys in the wild and captivity and understand some of the problems facing them
3. To develop empathy and respect for the environment and all wildlife and to learn what we can do to protect it
4. To complete activities covering different areas of the curriculum to demonstrate understanding of the subject matter

This pack is aimed at Key Stage 2 pupils. The information and activities in this pack are aimed to develop the pupils' understanding and appreciation of animal welfare, conservation and of people of other cultures and climates. Activities cover literacy and numeracy skills as well as drama, music, science and art.

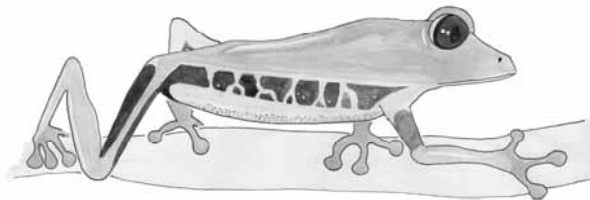
How to use this teachers' pack

The Pack is split into 3 sections: "The Tropical Rainforest and Us", "Wild About Monkeys!" and "Conservation Crazy!"

Each section has an overview of the subject matter followed by a number of lesson plans which cover one or more of the above learning objectives.

These notes are designed to give teachers enough information to confidently take their class through the suggested activities and to accompany the relevant Pupil Activity Packs which cover each section independently.

Following each lesson plan is a series of Hints and Tips on suggested outcomes or starting points for pupils.



tropical rainforests

Learning objectives:

- To learn about the tropical rainforest and its inhabitants
- To look at the people that live in the rainforest and how their lives are different to ours
- To decide if we think the rainforest is important to us
- To look at ways in which we can help to save the rainforest

It is not long ago that Europeans considered the world's "jungles" to be dark, dangerous and mysterious places inhabited by fierce animals and savage or simple natives. However, over the last few decades we have begun to learn more and more about this beautiful and complex environment and its people. The more we learn, the more we have realised that the "jungles", now more commonly referred to as rainforests, and the people who inhabit them are more rich and diverse than most other areas on earth, and that they play a vital part in our everyday life.

What is a tropical rainforest?

As the name suggests, tropical rainforests lie between the Tropic of Cancer and Capricorn within a climate of heavy rainfall. Because the tropics sit so close to the equator, there are no seasons and the hot weather is constant. This is one of the reasons that there is so much life in the rainforest.

You may be surprised to learn that the quality of soil in the rainforest is very poor and not as nutrient laden as you might think is necessary to support such a thriving ecosystem. In some parts the soil may only be a few centimetres thick as the heavy rain causes erosion and leaches nutrients. The rainforest flora and fauna have therefore had to adapt to this process and have become so efficient at recycling nutrients that only 1% is lost to leaching caused by rainfall, and it is therefore the plants and animals that hold the majority of the nutrients and not the soil.

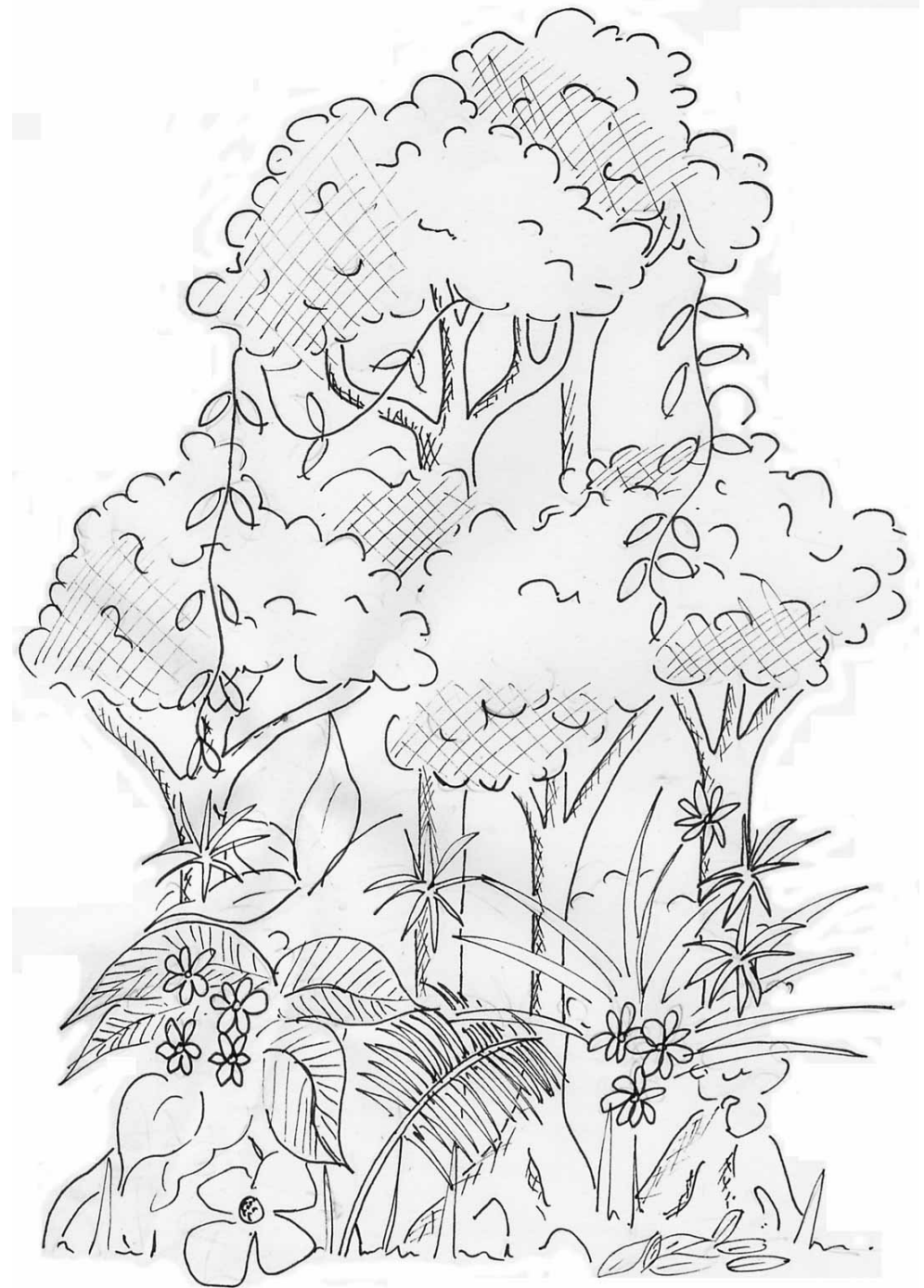
Rainforests are found in three main regions – the Neotropics, Africa and Australasia. The Neotropics include the large Amazon rainforest, home of the Woolly and Capuchin monkey, which is located in Central America, the African region is predominantly Central and Western Africa and also Madagascar and the Australasian region includes those forests in continental Asia and Australia.

There is a great diversity of life in the rainforest and, although rainforest only covers 7% of the earth's surface, half of the world's species live in rainforests, with new species being discovered on a regular basis. It has even been suggested that up to 90% of the world's species may live in the rainforest. To quantify, it is thought that every hectare of the South American rainforest will contain 42,000 species of insect, up to 1500 plant species and up to 750 species of tree.

What does a rainforest consist of?

The main framework of the forest is its trees which are split up into three distinct layers:

1. Canopy
2. Understory
3. Floor



The canopy

The canopy forms a continuous layer with occasional emergent trees above it. Unlike the temperate forests of the UK and Europe there is great competition for light, thus the trees concentrate their leaves in the uppermost layer to maximize photosynthesis and therefore their ability to capture energy and nutrients and increase their chances of survival. As a result the canopy trees have long branchless trunks, often covered in spines to prevent animals from climbing them to eat their leaves or fruit.



The understory

This layer is broken down further into 3 subsequent layers: Lower Tree, Shrub and Field.

- In the *lower tree layer* there are dwarf trees that have adapted to survive in low light conditions, and the young trees that will eventually grow to form part of the canopy.
- The *shrub layer* consists of mature woody plants, very young canopy trees and miniature trees.
- In the dark *field layer* plants have had to adapt to ensure their flowers are pollinated and so produce large white flowers which attract nocturnal bats and moths.



The forest floor

The forest floor consists of a thin layer of rotting vegetation and although it may seem relatively bare, is in fact teeming with life. Decomposers live on the forest floor and they play a vital role in the recycling of nutrients. The main decomposers are fungi, who feed by breaking down plant tissue. The fungi are subsequently fed upon by plants allowing a large percentage of nutrients to be reabsorbed and only a fraction wasted through leaching.

Climbers, epiphytes and stranglers

These plants are neither floor or canopy dwellers but intertwine themselves with existing trees and use them as the framework for their growth. Lianas are very common climbers and cause no damage to the trees that they attach themselves to but strangler figs and other plants of its type literally strangle the host tree and starve it of its nutrients, which results in its eventual death. Epiphytes, like climbers, do not leach the tree of all of its nutrients but take what they need and can live alongside their host without causing damage. They grow not from the soil but from crevices within the plant's surface.

How do people use rainforests?

For many thousands of years, tribes of people have lived in the rainforests as an integral part of the ecosystem. As part of the rainforest they have a deep understanding of the complex interactions and interrelationships between species. They know which plants and animals are useful for food or medicine and how to take them without damaging the environment.

Some tribes such as the Yanomami of the Amazon have a farming style that does not disrupt the rainforest. They clear a patch of forest and plant crops, but allow the forest plants to regrow without weeding them out. After some time they move on to a new patch so that the original plot has a chance to regenerate.

The way of life of these tribes is now threatened due to deforestation.

Whilst the people living in the rainforest have learned to live there without causing harm to its amazing ecosystem, it is the people living thousands of miles away from it that cause it the most damage. It is Western countries such as the UK and US that are exploiting the rainforests for their resources and threatening their future existence.

The rainforest has three main uses for people. Those are:

Wood

The main export from the rainforest is its timber, such as mahogany and teak. This type of wood is known as tropical hardwood and is very expensive and sought after in furniture making in the western world in particular. The problem with cutting down mahogany and other hardwoods is that the demand by far outstrips the available supply with more than 120,000 square metres being exported from Central and South America each year.

Rainforest ecosystems are so delicate that once destroyed, it is almost impossible for them to grow back. As a result, once the rainforest is gone, it is gone forever.

The largest trees in the rainforest can be up to 60 metres tall and over 1,400 years old. The long length of time it takes for some rainforest trees to grow is another reason that it is so difficult for an area to successfully regenerate once it has been cleared.

The result of chopping down trees does not only have an effect on the trees themselves but also on the wildlife that makes its home in or around the wooded area. Logging can result in up to 50% decline in species and up to 100 species can be lost per day due to this process.

Mining

Mining for metals such as iron, copper and tantalum requires large areas of the forest to be cleared using the "slash and burn" process so that mining can be facilitated. This is devastating for the both the forest and its native people and wildlife.

Land

Trees are not only cleared for timber and mining. Land is also cleared to make way for the rearing of cattle and the growing of cash crops such as coffee and bananas. Technology today means that it is no longer strictly necessary to grow native plants such as coffee in tropical rainforests as environments can be created elsewhere artificially to grow the same plants. The reason that land is used in the rainforest regions is largely because it is so cheap and easily available.

The reason that deforestation continues is because of the level of poverty in the countries in which the rainforests are found. As it can be seen from above, the most significant impact on the rainforest is made by rich western countries who exploit the resources. On the other hand, it could be viewed that it is this exploitation brings in vital funds to countries that, for the most part, are subject to massive national debts. Unfortunately, whilst money comes in from these practices, the country never takes a significant profit and so can never quite pull themselves out of poverty and thus the exploitation continues. We look in this pack at ways in which our effect on the rainforest can be minimised.

Who lives in the rainforest?

People

One of the most known tribes in the Amazonian rainforest is the Yanomami. These tribes build large communal houses in clearings which can comfortably house over 300 people. The houses are called Yano and are made of palm leaves and supporting poles and have a large opening in the centre with no roof. This central area is communal and used for socialising and celebrations.

The Yanomami way of life is sustainable and in tune with the delicate balance of the rainforest ecosystem. The people are hunter-gatherers who also grow their own crops for food and medicine. All food is shared between the community and gardens are replanted in different areas every couple of years to allow the previous plots to regenerate. When hunting, picking crops or felling trees, the Yanomami only take what they need and no more meaning that they have been able to live alongside all the other inhabitants of the forest, both plant and animal, for thousands of years.



The Yanomami are one of the oldest tribes that make their home in the Amazon rainforest. Their way of life does not affect the delicate balance of species around them, unlike the large organisations that are felling huge areas of the Yanomami's rainforest home and threatening their livelihood.



Animals

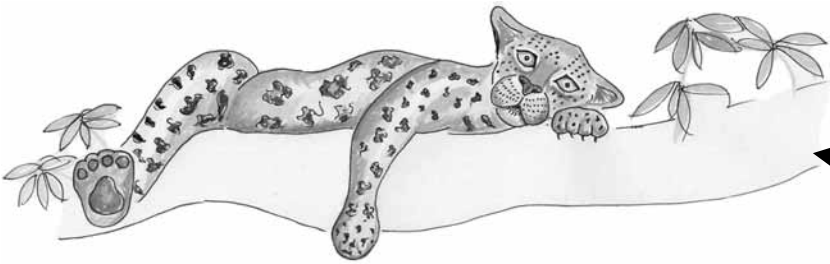
All kinds of animals live in the rainforest and new species are being discovered every day. Each one plays an important part in the maintenance of the complex and delicate food web that exist in the rainforest. Because there are so many species, competition for survival is fierce and, over time, this has resulted in rainforest creatures making incredible adaptations to go "one better" than their rivals meaning that the predators develop more amazing and intricate systems of attack and the prey develop ingenious defences to preserve themselves.

Plants

Like the animals, rainforest plants and trees have had to make startling adaptations to survive in their unusual climate. Trees that grow up to 60 metres tall cannot support their height by growing roots down into the thin topsoil and so have developed "buttress" roots which spread out wide along the forest floor and form a framework to support the huge tree as it extends towards the sky.

The plants on the dark forest floor have adapted to produce huge white flowers which are highly visible despite the lack of light to ensure that they are pollinated. These flowers open at night and close during the day – the opposite of flowers over here in the UK. Others, such as the Rafflesia bloom are parasites, draining all of the nutrients from their host. This particular plant has been given the nickname “corpse flower” because its blooms smell of rotting flesh and is the largest flower ever discovered, measuring a metre across.

Like the animals, the plants are all part of the intricate web of life in the rainforest, with each species playing a part. An example is the brazil nut tree, which can survive in many different places but will only produce fruit when pollinated by a particular bee which can only survive in pristine rainforest. Without this bee there would be no pollination and thus, no more brazil nut trees.



The jaguar is one of the Amazon's most feared and successful predators. With his mottled coat he can blend into the sun-spotted undergrowth and stalk his prey silently.

Jaguars are carnivores and feed on everything from small birds to alligators!



The harpy eagle is one of the largest birds in the world with a wingspan of 2 metres and a height of nearly a metre.

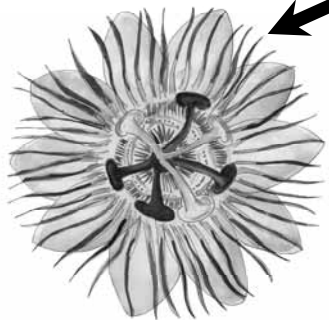
Harpy eagles are a predator of the woolly monkey.

Passion flowers use their vibrant colours to attract butterflies and insects to pollinate them.

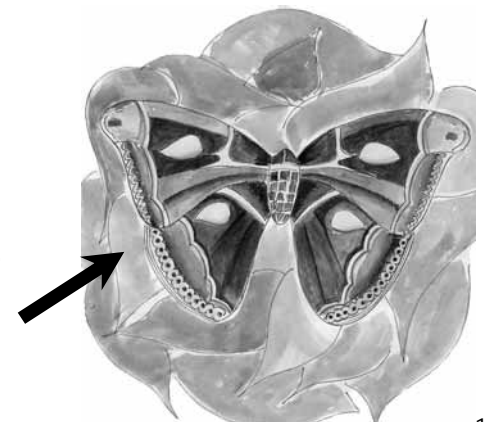
They also act as hiding places for smaller creatures.

The toucan has a beautiful bright beak which it uses to attract a mate.

They are among countless other bird species making their home in the rainforest environment

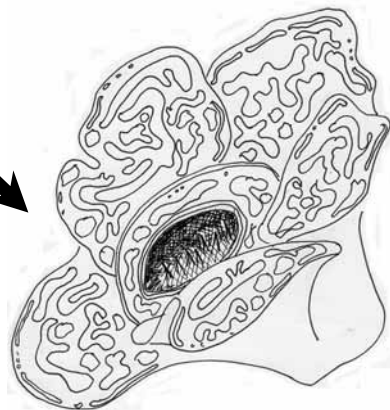


The Atlas moth is a master of disguise and uses its camouflage wings to blend into the rotting vegetation on the forest floor



Found in the forests of South East Asia, the rafflesia bloom is the largest flower in the world and measures 1 metre across.

It is known as the corpse flower because it smells like rotting meat to attract insects.



Suggested Lesson Plans

Rainforest pen pals

This workshop encourages children to think about the differences in the way in which they live in comparison to children living in the rainforest.

The children have an overview of tribal life in their Activity Packs which should be read aloud at the beginning of the lesson, either by you or one of the pupils:

Following this the children should be asked some questions as a group about what life in the rainforest might be like to encourage them to come up with ideas such as the following:

1. What do you think you might wear if you lived in the rainforest and where might your clothes come from?
2. What do you think you might eat and how will you cook it?
3. Where would you live?
4. Will you go to school and what might you learn?
5. What games will you play?
6. Would you like to live in the rainforest?

These questions will help the children to incorporate both the outline of tribal life and the other information they have in their packs to think of life in the rainforest and what it might be like.

Now ask each child to write a letter to a child in the Amazon Rainforest to tell them about themselves and their life here in the UK. They might like to talk about their favourite foods, pastimes and what they learn at school. They might have questions to ask about the life over there.

Hints and Tips

Once the children have written their letters why not try to answer them by using a source such as www.survival-international.org, which has lots of information on the Yanomami and other tribes and is very useful for follow-up information. You might also want to look at the book and website list at the end of this section to learn more about life in the rainforest.

How do I use the rainforest?

For this workshop you will need the following picture cards (or the real thing if you are able to collect the items):

- *A chocolate bar*
- *A Brazil nut*
- *A mobile phone*
- *A medicine bottle or tablet pack*
- *Coffee*
- *Can of Coca Cola*
- *Chewing Gum*

A map of the world is also helpful but not necessary.

This short workshop is split into two halves. The first half asks the children to think about the rainforest and decide whether they think it is important to them personally. The second section is a revealing game which shows them that the rainforest is closer to them than they might imagine and that they can help to conserve it by making tiny changes in their everyday lives.

Start by showing the children the map of the world. Ask them if they can tell you where the UK is. Next ask them if they know where the Amazon rainforest is. They may need some help with this but it is worth pointing out quite how far away it really is (over 5,000 miles from the UK).

Once they have established this, ask them if they use anything in their day-to-day lives that might have come from a rainforest. They may say no, or they may make some suggestions, such as paper or fruit. Tell them that they are going to play a game where they have to guess which items come from a rainforest.

Choose one pupil to be "Yes" and one to be "No" and ask them to stand in front of the class.

Next, show the children the picture cards, one-by-one, and ask them to tell you which ones they think come from the rainforest by answering "yes" or "no" and giving that picture card to the relevant person to hold onto.

What normally happens is that most of the items are given to the "No" pupil with the exception of a few, such as coffee or Brazil nuts.

Hints and Tips

When they have decided, inform them that all of the items they have been shown come from the rainforest and run through the answers with them as follows:

Chocolate – Comes from the Cocoa plant and is the main ingredient in chocolate. The Cocoa plant is native to rainforest climates and, whilst it can now be grown in controlled conditions almost anywhere in the world, traditionally it comes from the rainforest.

A Brazil Nut – Come from the Brazilian rainforest. The reason the Brazil nut is particularly special is that it will only grow in pristine rainforest conditions due to its very specific pollination process, as outlined in the general overview at the beginning of this section.

A Mobile Phone – there is a tiny chip inside each mobile phone made out of a metal called tantalum. Tantalum is found in a number of places but in its purest form is underneath the Congo basin, home to an endangered species of gorilla. At present, tantalum is being mined from underneath the Congo to supply these chips to the consumer market and is having a devastating effect on gorilla populations in the area. If, when you have finished with your mobile phone, you take it to a recycling point, that tantalum chip can be recycled and a small part of this land can be saved.

A Medicine Bottle or Tablet Pack – The rainforest has been a vital source of medication for many years and new species of plant are being found every day that could have positive implications for the progression of medical knowledge. For example, Rosy Periwinkle plants have been found to have properties which can help in the treatment of cancer, yams can aid arthritic pain and ouabain seeds can help to ease heart problems. A quarter of prescription medicines originated in the rainforest.

Coffee – the coffee plant is a shrub that grows on the forest floor in shaded areas. It grows in abundance in the rainforest conditions, and as a result is known as a “cash crop” because of its resale value. Coffee, like chocolate, can now be grown in controlled conditions outside of the rainforest but there are still huge areas of rainforest being cleared to grow coffee crops. Coffee is one of the most exploitative businesses in the developing world and it is therefore important to ensure that coffee you buy is fairly traded.

Can of Coca Cola – Traditionally, the distinctive taste of Coca Cola came from two rainforest species, the Coca plant and the Kola nut. As time went on, the Coca plant was banned and reclassified as an illegal substance due to its effect on people that used it in a particular way (Cocaine) and this part of Coca Cola was replaced with flavouring. Some cola brands do still use the Kola nut in production of their drinks.

Chewing Gum – Chewing gum is made from the sap of the saponilla tree. It is this ingredient that makes it chewy!

As an addition to the session, ask the children to try to find out more about items that have their origins in the rainforest – there are hundreds of different products including rubber, more medicines, fruit, dyes, cloth and much more.

Design an Amazon animal

This workshop asks children to look at the way in which rainforest animals, birds and insects have adapted to living in this environment and come up with their own ideas for a creature.

The lesson can be a fun piece of artwork where the children use their imaginations and make their creatures as silly as they like. They should, however, be encouraged to think of reasons for their ideas and it is worth talking to the children first to get them to focus their ideas. The children have the following guidance questions which they should bear in mind:

1. Is your creature a bird, a mammal or an insect?
2. Which part of the rainforest will your creature live in? Will it live in the trees or on the floor?
3. What will your creature eat? Will it eat plants or other animals?
4. What colour will it be? Does it stand out from its surroundings or blend in?
5. Is your creature awake in the daytime or night time?
6. What will the name of your creature be?

Hints and Tips

This exercise should get students thinking about the ways in which creatures adapt to different surroundings. Here are some ideas to help them along:

1. Animals living in the canopy would need to be good climbers, with good balance. Monkeys have tails that they use for balance and sometimes as an extra limb. Canopy animals are often smaller and lighter than animals living further down in the rainforest.

Animals in the understory might have to survive with less light so they may have large eyes or good hearing to compensate for the lack of light. They might be darker in colour to blend in with their surroundings

Animals on the forest floor have to cope with damp and dark conditions, perhaps they might be amphibians

2. Herbivores eat only vegetables, carnivores eat meat and omnivores eat both vegetable matter and meat
3. Animals that are prey often have eyes on the side of their heads so that they have a wider range of vision. They might also have good hearing and be able to move quickly to run away. They might be camouflaged to protect them from being found and attacked. Sometimes prey animals make themselves look like something other than an animal to fool predators. Sometimes they have clever defence mechanisms.

Predators are often large with forward-facing eyes so that they can focus on their prey. These animals might also be camouflaged so that they can creep up on unsuspecting victims. They might be strong so that they can attack successfully. If it is not strong, perhaps it could have a clever way of trapping prey?

4. Think about whether your animal needs to be camouflaged or whether it is brightly coloured. Perhaps it is poisonous and needs to be bright to tell others not to hurt it. Maybe it is poisonous and camouflage so that it can attack stealthily! Some animals are bright so that they can attract a mate. Perhaps it is not poisonous but brightly coloured so that other animals *think* that it is!
5. This may affect how your creature looks, what it eats, how it moves and how it finds things.
6. This is up to the pupil, they can be as logical or as silly as they like!

Opposite is an example of an imaginary Amazon Animal to get the children started.

Follow-up Activity

A great way to finish this exercise is for you or the children to paint a large rainforest background and position their creatures in the part of rainforest they will live. It can form a lively display and could develop into an exciting art project for the whole class.

Profile

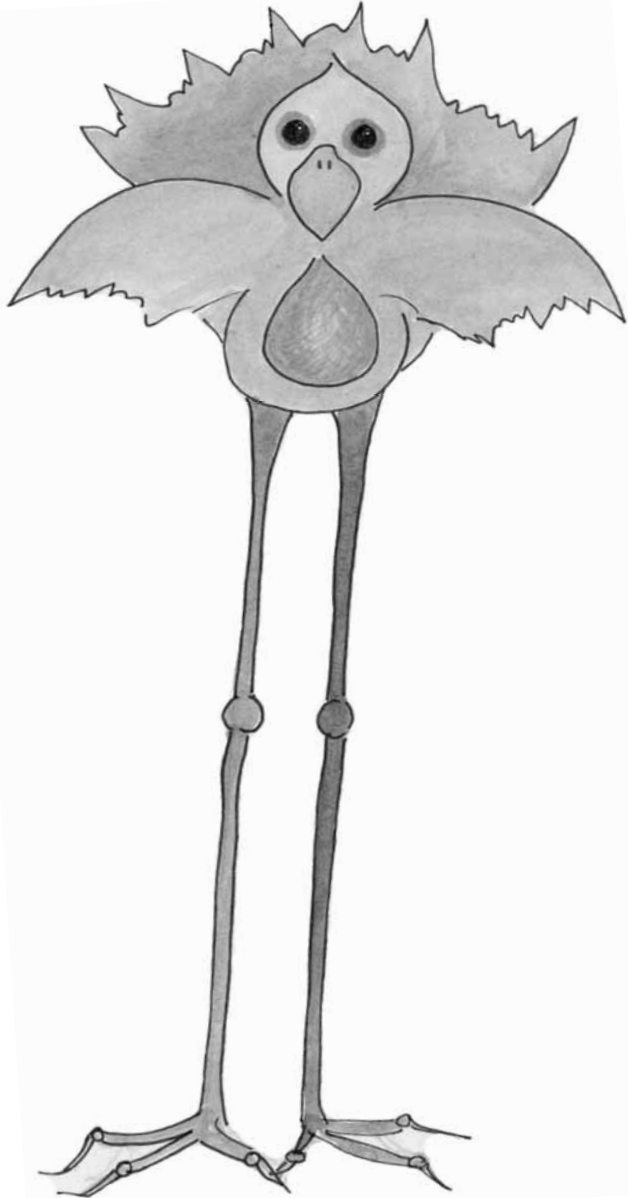
Name: The Milehigh

Location: Amazon Rainforest

Attributes: The milehigh's small wings do not allow flight. Legs grow up to 150 feet long for easy feeding from the rainforest canopy

Plumage is green to camouflage the milehigh from predators, with brown, twig-like legs to blend with the trunks of the trees. Baby milehighs are born on the forest floor and are totally brown to blend with the tree-trunks. Their green plumage develops as their legs grow.

The milehigh's main problem in the rainforest is getting their long legs tangled in vines. To spot a milehigh in the rainforest, find areas where the vines have been cut to allow passage through. The milehighs do this by using their sharp beak.



Make up a campfire story

This workshop encourages pupils to develop an imaginative story using the information they have learned. There is also an opportunity to incorporate drama by acting out a trip to the rainforest and setting up camp.

For the opening of this session, it is important to set the scene. The children can either be Amazon Explorers, searching the jungle for exciting new life forms, or they can be tribe members who have been out hunting for the day and are coming back to their village to tell the rest of the tribe about their day.

First they must pretend to be in the jungle. Set the scene as follows:

There will be tree roots everywhere that they have to be careful not to trip over, it will be hot and humid and may be raining heavily. If they are hunters, they will move quietly so as not to disturb their prey and if they are explorers they will be looking closely at everything they come across, perhaps with binoculars or magnifying glasses. There will be insects to watch out for and strange noises that might make them jump. Lead them in this short piece of drama and then ask the class to sit in a circle where they will create their camp fire and tell their story.

The aim of the workshop is for the children to work together and tell a piece of the story each, making it up as they go along. Starting with an opening from you such as "One day, we were walking through the forest and we heard a strange noise..." Then begin to move round the circle and ask each child to add a bit to the story. Their addition can be as dramatic, exciting or descriptive as they like.

Hints and Tips

The children will need prompting to ensure that the story moves along and eventually comes to an end but the idea is to let them decide what happens and try to use the information that they have already learned about the rainforest.

It's a good idea to write the story down as they go along as it can be used in another exercise where they have to illustrate their story and perhaps create a display.

Rainforest sounds

This workshop asks the children to think about what the rainforest might sound like and create a piece of music to demonstrate their ideas.

The children should have access to musical instruments if possible, particularly percussion, but should also be encouraged to use their voices to see what type of sounds they can make and even create their own instruments if time allows.

Start the activity by asking what sort of sounds the children might expect to hear in the rainforest and see what ideas they come up with. Then ask them if they can recreate what those noises might sound like using the instruments they have access to or their own voices.

They have been given the following ideas for sounds in their Activity Pack, which they can build upon:

- Rain falling
- Bird calls – squawking and singing
- Animal calls – growling and calling
- Snakes slithering
- Leaves crunching under feet
- Trees blowing in the wind
- Animals leaping from branch to branch

Hints and Tips

This activity might mean some fairly structured leading from you (particularly for younger children) but the children should be able to experiment and think about the type of noises they might hear in the rainforest. It's a good idea to keep a beat on a drum as guidance for them.

This could combine with a drama and dance exercise and the children could act out the noises for their piece of music.

Additional Resources – Books and Websites

Books

A Walk in the Rainforest – ISBN: 1-878265-53-9

Journey into the Rainforest – ISBN: 978-19-910731-5

Rainforest (Eye-Wonder Series) – ISBN: 1-4053-0470-7

Revealed Rainforest – ISBN: 1-4053-0313-1

The Vanishing Rainforest – ISBN: 0-7112-1960-5

Websites

www.blueplanetbiomes.org

www.livingrainforest.org

www.monkeysanctuary.org

www.rainforestconcern.org

www.rainforestlive.org

www.rainforestrescue.org.au

www.rainforestweb.org

www.savetherainforest.org

www.survival-international.org



wild about monkeys!

Learning objectives:

- To learn about woolly monkeys and capuchin monkeys
- To look at life for these monkeys in the rainforest
- To look at life for these monkeys in captivity – both as pets and in a zoo/sanctuary situation
- To decide whether life in the wild or life in captivity is best

Woolly Monkeys

For nearly 40 years, the work of The Monkey Sanctuary focused on woolly monkeys, a beautiful primate originating from the South American rainforests. In 2001, our work developed to include the care of capuchin monkeys, a smaller and more intelligent species that are commonly kept as pets in this country. This next section introduces pupils to the main focus of our work and our plans for the future.

What is a woolly monkey and where do they come from?

About 60 million years ago Africa and South America began to drift apart – a process known as continental drift. The monkeys isolated in South America radiated into the tropical rainforest – an unexplored ecological niche. Being separated from their ancestors in Africa, they evolved into a distinct group, first known to Europeans when America (the 'New World') was discovered. Woolly monkeys are a species of New World Monkey inhabiting the virgin forest deep in the mid and upper regions of the Amazon basin.

The famous German explorer and naturalist Alex van Humboldt first recorded woolly monkeys in the early 1800's. He described them as a large, dark brown, long-haired monkey and named them 'Lagotricha' – a word of Greek origin meaning 'hair like a hare'.

Woolly monkeys live in groups of 10-40 animals and consist of several adult males, one dominant male and many females with their infants. The troop spends most of its time high in the canopy, around 100-200 feet above the ground, and the exact size of a woolly monkey troop is dependent on food available in that area.

Sometimes home ranges of adjacent groups overlap. When this happens the males may vocalise or shake branches demonstrating their strength. In most cases this is the full extent of their



conflict, as the groups tend to avoid each other.

Scent marking by chest rubbing is practised by the adults. It has been suggested that this is for defence purposes – to keep other groups away. However the fact that home ranges overlap implies that it is to mark out the territory for the direct benefit of the youngsters within the group, to mark safe boundaries, beyond which youngsters should not stray.

The woollies travel several miles per day. It seems likely that when food is abundant, as it is during the rainy season, the group does not need to move so far to find food. In a typical day woollies move slowly through the forest, foraging until about midday when due to the heat they rest for a few hours before continuing until late afternoon.

What does a woolly monkey's diet consist of?

Woolly monkeys are sensitive to any changes in food abundance and constantly monitor the ripeness of fruit, moving through their home range in search of new food supplies. Most of the year they feed in the middle canopy but during the late rainy season they have been known to use the lower tree level more intensively when ripe fruits are particularly abundant. Occasionally they will venture into the shrub layer, feeding on ground vegetation.

Woolly monkeys have a varied diet, consuming up to 150 different kinds of fruit per year, including figs, avocados and wild cashews. They are basically frugivores but also eat seeds, leaves, flowers and insects. Without realising it the woolly monkey fruit eating habits plays an important role in the ecosystem.

How do woolly monkeys play an important part in the ecosystem?

In their quest for edible fruits, the woollies play a critical role as seed dispersers. By producing fruits with a thin layer of sweet flesh, adhering to several large seeds, the trees encourage monkeys to eat the entire fruit. After an intensive feeding bout, the monkeys bear massive tummies, hence their Brazilian name 'Macaco Barrigudo' or 'belly monkey'. The seed coats are indigestible and are defecated intact during which time the monkeys may have travelled a considerable distance. In this way the seeds are distributed and the high diversity of the rainforest is maintained. It seems that some trees have co-evolved with the monkeys and have now reached a point whereby neither can survive without the other.

It is not only plants that rely on woolly monkeys but there are also important interdependencies between woolly monkeys and other animals. Kites and hawks feed on insects, which have been disturbed as the monkeys travel through the canopy. Capuchins and squirrel monkeys take advantage of any fruit uncovered along the way. Because the woollies are messy eaters they also provide fruit for the deer and peccaries (related to the Amazon pig) feeding on the forest floor. These are only some of the interactions existing within the rainforest but there are many more. The rainforest is a finely tuned ecosystem and we cannot affect any species without ultimately affecting another.

Although different species of animals coexist there is little antagonism between them. Even when two related species such as the woolly and spider monkey eat similar fruits and are likely to be in competition it appears that they coexist peacefully, adopting a strategy of mutual avoidance.



How are woolly monkeys adapted for life in the treetops?

Woolly monkeys have certain adaptations that make them ideally suited to life in the rainforest. The first and most important of these is their prehensile tail, which they can use as an extra limb, earning them the nickname "the five handed monkey". This amazing tail has a palm-like tip which can be used for gripping and hanging, leaving other limbs free for feeding and climbing. Woolly monkey babies are born with an instinct to use their tail and will wrap it tightly around the tail of their mother to stop them from falling the 100 plus feet to the ground. Other tree dwellers such as anteaters, opossums and porcupines also have prehensile tails but cannot utilise them to the same acrobatic extent as the woolly monkey.

Another advantage of being a woolly monkey is that their opposable thumbs are on their toes and not their hands, thus allowing them to use their feet and tail for hanging from branches that support their weight and feeding from branches that would not. This gives them access to food that other mammals of their size simply would not be able to reach. The other benefit to not having an opposable thumb on their hands means that they can swing quickly and easily through the trees without being hindered by a thumb sticking out at a different angle to the fingers and thus risking breakages.

The coat of the woolly monkey is also very well adapted for their rainforest dwelling. With their dark bellies and light backs, from below, they are not easily detected, and from above, they reflect the light so that they can appear to almost disappear into the higher canopy as their coats reflect the green of the leaves. Not only this but their coat is very dense, meaning that very few insects ever manage to burrow deep enough to actually bite them and so they keep their skins in very good condition. The females have longer fur on their underside so that when they have young, they can cling on safely to their mum.

What do we know about woolly monkey social structure?

Because the monkeys live in such isolated regions very little is known about their social behaviour in the wild. The most detailed early research about their lifestyle, including patterns of communication, mating behaviour, and birth and development of an infant have been recorded here at The Monkey Sanctuary.

The adult males have a protective role spending most of their time patrolling the territory, checking all is safe and keeping a watchful eye on any disputes. The dominant male is ultimately responsible for the group and if a dispute becomes serious he will provide a suitable solution, separating and disciplining those who are quarrelling. To develop a sense of security the dominant male spends time building relationships with the rest of the group, introducing himself to new babies and playing with other members of the group.

The dominant male is not the chosen leader only because of his strength but because of his intelligence and responsibility. The females and infants need to feel secure and protected, therefore the females decide which male has the best leadership qualities and only with their support can he maintain his position.

Adult males are often seen cautiously approaching an infant, making gentle reassuring noises. They have also been observed accompanying a female and her new infant wherever they go. An adult male will adopt paternal duties with all the babies, whether or not he is the biological father. The dominant male is particularly patient while being followed by an entourage of younger males, watching and copying his every move. Sometimes the adult males will accept being bullied into play by the juveniles - in this game he gently wards off mock attacks.

Play is very important for the development of social and locomotory abilities. The enhancement of athletic ability and physical strength also helps establish the 'pecking order' within the group. Play involves wrestling while hanging by the tail, arms or legs, chasing and jumping on each other. Monkeys of any age will play together although the juveniles do play more frequently.

How do woolly monkeys communicate?

Woolly monkeys are very accomplished communicators. They achieve this by body language and a series of calls which they will begin to learn from a very young age. Below are just a few example of sounds and gestures that these monkeys use to communicate to each other and to us:

"Eolk" (ee-oh-ik) – means "Hello" or "I'm here, where are you?" This is the main contact call of the woolly monkey and is used in the rainforest to locate other members of the group, or to check that everyone is ok. One monkey will make this noise and the other colony members will respond.

"Yok Yok Yok Yok..." - means that one of the monkeys is worried or frightened. They will often do this if they see something unusual or unfamiliar. It is often used by the younger monkeys asking

for reassurance. The older monkeys will come and investigate and if all is ok will often “eeolk” to the worried party to let them know all is safe. If they are concerned too, the “yok-ing” will spread around the colony and can become quite deafening until the “danger” has gone.

“Scream” – like humans, if scared or angry, the woolly monkeys scream. It sounds horrible but will often mean someone is having an argument and not actually being hurt. The youngsters and females are more likely to scream than the males, who would not want to lose face by showing they are afraid.

“Chuckle” (huh-huh-huh-huh) – this noise sounds a lot like a human chuckling but is slightly quieter. This noise is used when monkeys are playing – most usually youngsters together or younger monkeys with older monkeys and it will continue to entire time that they are playing. Monkeys will play just like small children and will chase, play-bite and throw each other around, and this noise is to show the mothers or older monkeys that it is just a game and no-one is getting hurt. As with human children, games can go too far and it is common for a chuckle to end in a scream!

Snuffle (tuff-tuff-tuff) – this is a very private communication, often between two monkeys or a group of friends. It is used when someone is unsure of where they stand, sometimes following a disagreement, or perhaps when certain monkeys haven’t met in a time and need to just reaffirm bonds. One monkey will approach another and often lie down or curl up in front of them. They will put their arm around the other monkey and bury their head into the monkey’s neck, making the quiet “tuffing” sound. If the snuffle is reciprocated, the other monkey will lie down and do the same. These snuffles can go on for a long time and will rarely be seen by humans as the monkeys will find a quiet spot to do their making up.

Trill – This a beautiful and high pitched, bird-like noise which the monkeys make when they have found delicious food to let the other members of the colony know.

Eye contact – eye contact is very rude to woolly monkeys and the adult males are very careful never to make eye contact with each other as it is a sign of aggression. They also extend these manners to keepers and expect us to do the same. If a keeper is caught looking straight at an adult male, they will be told off by having the bars of the enclosure shaken at them. The males will avert their gaze or turn their back to show a female or youngster that they are safe to share a space or pass them safely when moving around the enclosure.

High and low – the monkeys are all very aware of woolly monkey etiquette and if one monkey deliberately positions themselves above another, this is seen as a sign of dominance. The younger males often do this when testing their position in relation to the other males, and the older ones do it to the younger ones to show that they are still on top!

What threatens woolly monkeys in the wild?

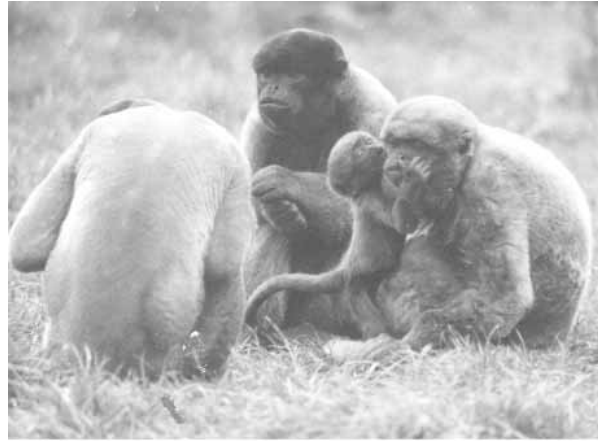
Sadly, it is man that is the greatest enemy of the woolly monkeys. Because they are one of the largest primates in the new world, they are often killed for their meat. Mothers are shot from the trees and their babies, still clinging to them when they fall, are sold as pets on the black market. In some countries, monkey meat is considered a delicacy, and some of it is even imported illegally into the UK. Deforestation is also having a devastating effect on woolly monkey populations as their natural habitat is destroyed.

There are only two other predators to the woolly monkeys: the harpy eagle and the jaguar.

Woollies call to each other to warn of danger



Family is important to woolly monkeys



A "snuffle"



Youngsters use play for fun and learning



Adult males take on a protective role in colony life



Babies spend time copying their elders to learn how to be a monkey. Here, Ollie tried to master the art of rope climbing



Capuchin Monkeys

What is a capuchin monkey and where do they come from?

The capuchin monkeys, like the woollies, are New World monkeys and inhabit the South American rainforests. There are eight known sub-species but this list might not be exhaustive and more subspecies may be discovered in future. The eight are:

1. White faced capuchin
2. White fronted capuchin
3. Weeper capuchin
4. Ka'apor capuchin
5. Brown, or tufted capuchin
6. Bearded capuchin
7. Yellow-breasted capuchin
8. Black or black-capped capuchin



A Weeper Capuchin, Gary



A Black-Capped Capuchin, Charlie Brown



A White-Faced Capuchin, Stinky (Jungle Friends)

They are smaller than the woolly monkeys and are known as the “chimpanzees of the monkey world” due to their large brain size and their ability to use tools – a skill they share only with great apes and humans. Capuchin monkeys have learned how to use a basic hammer and anvil system for cracking nuts that they cannot open by using their teeth alone. Unfortunately, it is their intelligence that has made them sought-after for human benefit and it is probable that if you have ever seen a film with a monkey in it, or seen a monkey performing tricks in a foreign country, that monkey will be a capuchin that has been trained to “perform”.

Capuchins have a semi-prehensile tail, that is they can use their tail to hang and support themselves but not to the extent of the woolly monkeys. It would be rare to see an adult capuchin supporting his whole weight by his tail but it is common for youngsters to do this in play.

What do we know about capuchin monkey social structure?

Like most monkeys, capuchins will live in large groups of up to 30 monkeys. About a quarter of the group will be male with the larger part being made up of females and youngsters and there will be a dominant male and female in each group.

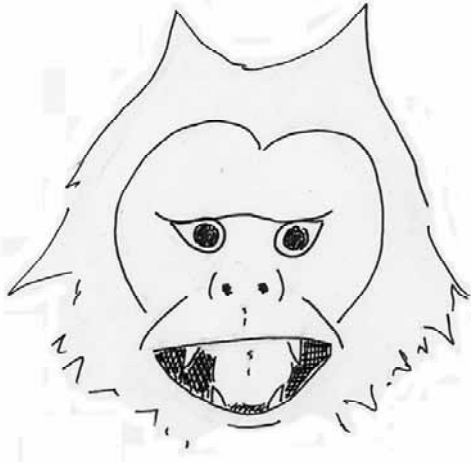
If the number of males becomes too large, it has been known for “bachelor” groups to split off from the main colony to reduce competition. These males will live happily with each other as a separate group or individuals will go and join another group altogether, where it is common for them to be accepted.

What does a capuchin monkey’s diet consist of?

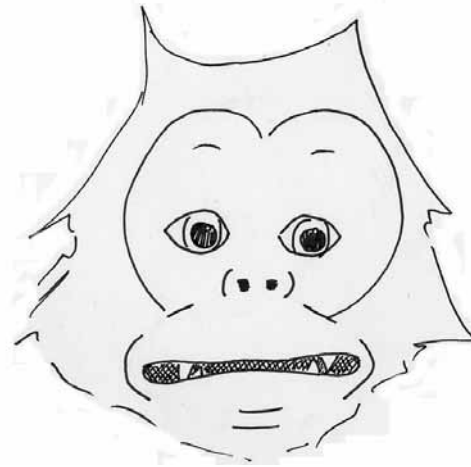
Capuchins have a more varied diet than the woolly monkeys and eat more protein. They are fairly accomplished hunters and will often catch birds or small rodents as well as lots of insects. They will also eat more fruit than the woollies and less leaves, often following behind woolly troops and eating what they have left behind.

How do capuchins communicate?

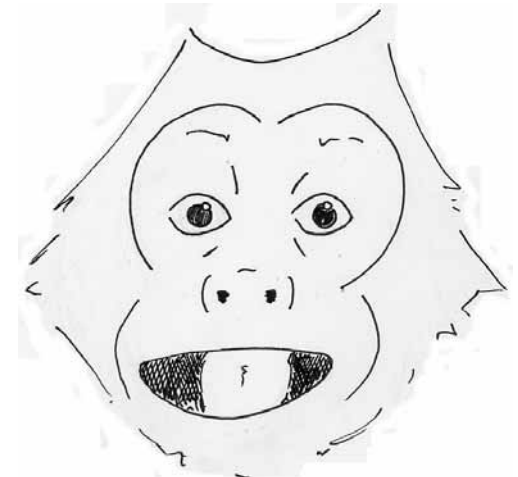
Perhaps because of their increased intelligence, the different species of capuchins have very different ways of communicating verbally and here at The Monkey Sanctuary we are learning new sounds all the time and would need an entire book if we were to document all of these elaborate signals and noises. Despite their difference in vocalisations, capuchins use a vast number of facial expressions to convey their mood to each other and to us and some of these are shared across the species as a whole. Here are just a few of them:



“Attach Face” - Mouth open, teeth bared.



“Appeasing/ Nervous Face” - Mouth partly open ,eyebrows raised. Monkey moves back-wards away from another to show submission and makes quiet grunting noises.



“Play Face” - teeth hidden, mouth and eyes wide, eye-brows raised

What threatens capuchins in the wild?

Again, man is the capuchins’ greatest threat in the wild. Like woolly monkeys, they are killed for their meat, but they are also used for “entertainment” and are sold as pets. It is perfectly legal to own a capuchin monkey in many countries, even here in the UK.

Monkeys in Captivity – At the Sanctuary

Why are they here?

All of the monkeys that we care for at The Monkey Sanctuary are either directly from, or descended from the pet trade. The woolly monkeys have all been born at the Sanctuary and were part of the first successful captive breeding programme for this type of monkey ever. They are now in their third and fourth generation which means that their great-great grandparents were part of the popular pet trade in the late 5's and 60s in this country.

The reason that we were able to breed the woolly monkeys is not down to any great expertise on our part, but from one monkey that we were lucky enough to rehome in the late sixties – Lulu.

Lulu was a woolly monkey discovered by the founder of The Monkey Sanctuary, Leonard Willilams in a pet shop. The unusual thing about Lulu was that she was around five years old, which is very strange because most woolly monkeys sold as pets would just be a few months old, having been taken from their mothers at just a few weeks. The problem for these monkeys is they simply don't know how to behave as they have never had the chance to learn from their elders. Lulu's benefit was that she had had a fairly natural upbringing, up until the point she was captured. She was a wild monkey through and through and remained that way until her death at the amazing age of 33!

Lulu came to join the, up until then childless, woolly monkey colony in Cornwall that had been set up by Len to rescue monkeys from the pet trade and soon showed the other monkeys what to do. Before long, she had given birth to Charlie, the first woolly monkey ever to be born and raised in captivity.

Our breeding programme continued in the hope that one day our woolly monkeys could be released and help repopulate the ever decreasing numbers in the wild. Sadly, over 40 years on, the situation is not better, but worse, and more of their natural habitat is being destroyed every second, meaning that there is no lush rainforest for the monkeys to go back to. We stopped our breeding programme in 1999 when it became apparent that it was highly unlikely that our Cornish monkeys would ever have the opportunity to live in the wild due to a number of factors and decided to refocus our work on rescuing monkeys from the pet trade, which sadly is still thriving in this country.

As a result we began rehoming capuchin monkeys, starting with Frosty and now have a "colony" of sorts that is made up of nine of these little monkeys.

Where do they live?

The woolly monkeys and capuchin monkeys occupy different areas of the site as we cannot put the two species together because of the risk of fighting and of cross-contamination as we cannot be entirely sure of the full medical history of all of the capuchins because they have not been here since birth. The woolly monkeys have weak immune systems and so exposure to the mildest of illness can have a devastating effect on them.

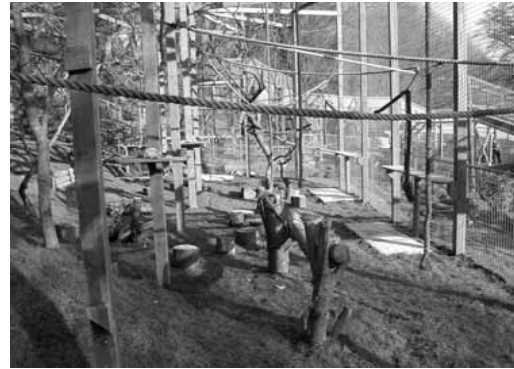
Both the woolly monkeys and the capuchins have a large and varied area to live in and the space is broken up into different enclosures which can be linked together or blocked off from one another at any one time. This means that the monkeys are not confined to just one space every day but can move around and meet different monkeys in different groups and different spaces. This is one of the ways we make their lives more interesting here.

Each enclosure has something different about it, whether it be the "Trees" area which has an open top and allows free climbing or the "Gym" which has an abundance of ropes and branches to leap and swing from for the woollies and "Room 4" which is the social meeting place for the capuchins where four groups can meet together for exciting games or the "Vegetable Patch" enclosure with its high roof and views over the entire Sanctuary grounds.

Capuchin Territory—Indoor Room



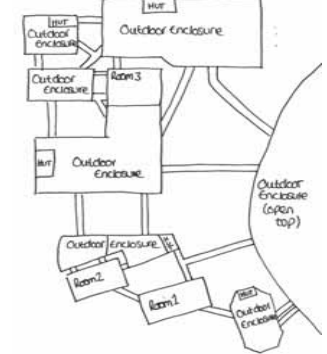
Woolly Territory—Outdoor Enclosure



Woolly Territory—Outdoor Enclosure



Territory Layout



What does their diet consist of?

The woollies have a diet which has been carefully adapted over the years to try to give them a nutritional intake comparable to that which they would have in the wild. We have a much more limited array of food available to us in the UK but supplement the monkeys' diet with a variety of wild leaves to ensure that they have as interesting a selection as possible. The following is an example of a feeding programme for the woolly monkeys in any one day:

- 08.30 – Breakfast of a fruitbowl consisting of apples, lettuce, leek, celery, chicory, pepper, cucumber, spring onions and other vegetables. Each monkey has around 1kg of fruit in each fruitbowl.
- 12.00 – Baked apples are given out, one for each monkey
- 14.00 – Lunch of another fruitbowl is given out, this time with pears instead of apples
- 15.30 – Wild leaves are given out. A handful for each monkey
- 17.00 – Dinner of another fruitbowl is given out – apples again this time!
- 18.30 – A piece of boiled root vegetable is given to every monkey for example; sweet potato, beetroot, parsnip and others
- 20.00 – Monkey Cake is given out, one piece for each monkey. This is made of a carbohydrate, such as oats, and a protein, such as tofu, and sweetened by fruit.

The capuchin monkeys have a similar diet to the woollies but can have a more varied amount of fruit and vegetables. For example the woolly monkeys cannot eat bananas because they are too high in potassium, or avocado because it is too rich but capuchins love both of these and can have them in small quantities. As in the wild, the capuchins need more protein and so they are given "live" foods such as crickets and mealworms plus they are given two eggs per week in comparison to the one that we give to the woollies. The eggs have to be hard-boiled to eliminate the risk of salmonella. The capuchins are also accomplished nutcrackers and so love hazelnuts and peanuts, the woollies are unable to open the shells and so do not have nuts as a regular part of their diet.

Both types of monkey are given a piece of chicken once a week for a protein boost. The ultimate treat for both types of monkey is grapes. We use them as rewards, to give medicine and even to bribe monkeys if we need them to leave or enter an enclosure!

Scatter-feeding is a way in which we can encourage the monkeys to forage and explore and gives them something to keep them busy and we try to hide food in nooks and crannies to encourage them to hunt for food as they would in the wild.

How large are their groups?

Whilst wild monkeys will live in large troops, this can be problematic for captive monkeys as many of them do not understand the politics that goes with living in a troop as they have never had the chance to learn from their parents.

For the woollies, this is not strictly the case as they have been brought up by their parents and have had as close to a natural colony life as possible with there being 24 woolly monkeys living together as one group at one stage. Since the non-breeding programme was implemented the number of woolly monkeys here at the Sanctuary however has gone into decline and has resulted in there being an imbalance of males to females. Without this balance, competition for the remaining females occurs and the result of this is that it is now too dangerous for the whole group to meet at once because the boys would fight and cause each other injury.

This means that the woollies are often split into 3 groups of around 4 monkeys and spend more time with their own families as they are unlikely to squabble with those closest to them. As time goes on, it will become more and more difficult for the woollies socially but we have decided that this is preferable to maintaining the breeding programme with no hope of release.

For the capuchins, socialising can be a difficult and frightening process. They will have been taken from their mothers at just a few weeks old and so were never given the opportunity to learn how to behave. When they arrived, some of the capuchins did not even know how to climb properly, and certainly not how to act around other monkeys.

An example of what problems this lack of interaction causes can be shown by highlighting Coco's case. Coco is one of our young males rescued in 2002. He had spent the majority of his life with a female, Chanel, and they are used having boisterous games which involve leaping around and play fighting at great speed. When he met the older monkeys, Gary and Peppy, he attempted to instigate these games but did not know when to stop or that he should behave more submissively with the bigger monkeys. As a result he has never quite been able to settle with these two and Gary in particular does not trust him, despite Coco having been here now for over 2 years. The same can be said of the two older monkeys in this situation: they had no experience of being taught by their elders and so did not know that they should be helping Coco to fit in.

This means that the socialisation of these naturally social animals is slow and tentative and it can be years before they are comfortable enough to spend a whole day together. As a result, the capuchin monkeys are usually kept in pairs or threes with the occasional group of four being able to meet for supervised periods.

What are the problems and how are they overcome?

We have discussed two of the problems faced by monkeys kept in sanctuaries such as ours, those being that there is a limit to the variety they can have in their diet and access to native foods and that socialisation is a potentially difficult process for them. There are many other issues that face these monkeys and we keepers, as their carers, have had to look for ways to overcome them and to offer the monkeys the highest quality of life that we can.

Another major problem for the monkeys is space. Whilst we pride ourselves on being able to offer the monkeys a large area per monkey, it is in no way comparable to the free movement they would have in the rainforest. This also becomes a problem if the monkeys fight as it means there is nowhere for them to run away to. For this reason we try to ensure that when we allow large groups of monkeys to meet they have more space than they need so that those who are not particularly close can avoid each other. We also ensure that there are 3 keepers each day who are responsible for ensuring the monkeys are happy and safe in the groups that they are in and moving them if there appears to be any friction. There are also two keepers who are responsible for the monkeys throughout the night and have to stay on site to deal with any problems if they arise.

Illness is always a worry for us as the monkeys can catch bugs and viruses from us and vice versa. Because they are not native to the UK, they have little or no immunity to some things that we would not consider serious, such as the common cold. As a result, we have to ensure that we wear protective gloves and overalls when cleaning the monkeys' territory and that we do not handle their food if we are in the least bit ill, and if it is something quite serious, like chickenpox, we are not allowed within about 100 metres of the monkeys at all!

The weather is, of course, very different to the tropical climate that the monkeys are supposed to enjoy and it is a problem with monkeys kept in captivity that they develop bone problems because of their lack of exposure to the sun, whose UV rays are a great provider of vitamin D. To overcome this problem, we ensure that the monkeys that are still growing and all the females have a daily vitamin D supplement to ensure their bones grow strong and all of the indoor rooms have UV lighting and are heated to 21°C to compensate for the cold British weather.

We also give them a more carbohydrate-rich diet than they would have in the wild to give them lots of slow-release energy to keep them going through the long English winter.

Finally, and potentially the biggest problems that we need to overcome are boredom and stress. If you compare the lush rainforest to manmade enclosures here in the UK, it is understandable that life in Cornwall can sometimes be boring. Monkeys need constant stimulation, just like children, and if they are not suitably occupied, they can begin to develop what are called stereotypical behaviours. Stereotypical behaviours can take many forms, such as head-twisting, hand-clapping, rocking, over-grooming but all of these things are a sign that the animal (it is not just monkeys that

display this behaviour) is unhappy, stressed or bored.

Our woolly monkeys show very little stereotypical behaviour with only one male who twists when he is in an area he is unhappy with but all of the capuchins showed some form of this when they first arrived and, although it has dramatically reduced since they have been here, there are occasions when it occurs again.

The best thing to stop this behaviour is to keep the monkeys busy and interested. This can be done in a number of ways; by allowing them access to new areas of territory, by giving them new things to think about in their territory (new branches, ropes, toys and puzzles are great favourites), allowing them to meet different monkeys and feeding them new and interesting things are just a few ways in which we “enrich” their lives.

Enrichment is an ongoing challenge for both us and the monkeys with the need for new ideas all the time. Like a child with a new toy, the monkeys can get bored of the same thing and so constantly need new and exciting stimulation.

“Nut Puzzle”

Capuchins have to move the nut through the maze of wheels, levers and slopes to release it from the hole at the end and claim their prize!



Hammocks, Hanging Baskets and Buoys

The capuchins love to play. They use toys to hide in, to swing from and to throw around. Capuchins are always on the go and we have to make sure they have plenty to do to keep them out of trouble!



Coffee Pot Fun!

Empty coffee pots make great drums...and hats, it seems...



Foraging Toy

Hiding food in secret places is a good way to keep the monkeys' brains working. With this foraging toy, the monkeys have to dig through dried leaves to find their fruit or nut.



Monkeys in Captivity – Primates as Pets

Why are they here?

Keeping a monkey as a pet is perfectly legal in the UK, despite years of research showing that monkeys are extremely intelligent, sentient and wild animals and are therefore wholly unsuited to be kept in a domestic situation.

It is thought that up to 3,000 monkeys are kept as pets in the UK alone, and the figure could far exceed that because of the limited knowledge we have on private keepers.

The present law states that it is legal to keep all monkeys as private pets as long as the owner holds a Dangerous Wild Animals License (or DWA for short). This excludes the smallest monkeys: marmosets and tamarins, as these species are not classed as dangerous enough to warrant a license and so can be kept by anyone with no limitations on the level of care.

The license is issued following the application by the owner to the local council, who have to arrange an inspection of the property at which the monkey is proposed to be kept. This inspection is conducted by a vet and is meant to ascertain whether or not the conditions are suitable for a primate and, more importantly to the licensing officer, whether the enclosure is secure to prevent escape. Unfortunately for the monkeys, most vets deal on a day-to-day basis with domestic animals such as cats and dogs and most will have no experience of primates as it is such a specialised field. Therefore what they may deem appropriate might actually be completely unsuitable, as we have often found to be the case when we have taken monkeys on from private owners.

Once the inspection has been completed the owner pays anything from just £25 – over £500 for their license, which is renewable annually. Unfortunately, there is a huge amount of non-compliance with the licensing laws which makes it very difficult to ensure welfare levels are sufficiently upheld, and Wild Futures has been campaigning since the year 2000 to see keeping primates as private pets made illegal in the UK.

Where do they live?

We have had arrivals here at the Sanctuary that have been kept in garden sheds, caravans and small cages to name but a few and when this is meant for an animal that would travel up to 15 miles in a day in the wild, it becomes clear why most of the monkeys we have rescued display some sort of stereotypical behaviour or are mentally traumatised. Some enclosures are better than this but a lack of knowledge about the animals they are caring for means that a vast number of monkey owners keep their monkeys in unsuitable housing.

Many times, a monkey will have free-reign of the house until it becomes older where it will become naturally more aggressive and will then be confined to a permanent cage to prevent it from doing any more damage to the house or its owners.



What does their diet consist of?

Because capuchins will eat almost anything, we have found that privately-owned capuchins have had a bizarre diet, often based around the owners' own. One of the first capuchins to arrive here has been fed on human food, including chocolate and jam sandwiches and was also given a cigarette to chew every day. Other monkeys have been given sweets and biscuits, all of which are terribly bad for their health. As a result, a lot of the monkeys coming in to us suffer from dental problems, poor fur and bone problems due to a lack of nutrients in their diet. Bad diet has also been blamed for a number of cases of diabetes in monkeys. Another of our monkeys came to us grossly overweight and found it very difficult to climb without wheezing heavily.

What are the problems and how are they overcome?

The main problem with monkeys being kept as pets is that their owners will generally have very little knowledge of how a monkey should be cared for and what to expect and this leads to lots of issues for both the animal and the owners.

A natural process when any monkey reaches adolescence (that is around 4-5 years old) is for them to begin to challenge the members of their colony to find out where they fit in the "pecking order". Unfortunately for the owners, the monkey will not differentiate between a colony of humans and a colony of monkeys and will therefore begin to challenge the owner and their family. What people often don't realise is that monkeys are very strong and very fast with extremely sharp teeth and the intelligence to know how to use them to the greatest effect. This can lead to horrific injuries for the owner and sad consequences for the monkey. This situation can lead to a number of different outcomes;

1. The monkey is euthanised as a result of an attack,
2. the monkey's teeth and claws are pulled out so that it can cause no further damage,
3. the monkey is put into a confined space where it can do no harm, or
4. the monkey comes to a place like the Monkey Sanctuary, or is simply abandoned.

Unfortunately this happens all too often and these are only the cases that we are aware of.

Another issue for private ownership of primates is veterinary care as most vets are not experienced in caring for primates so when monkeys get sick there is nowhere for the owner to go, and even if they do, the bills are extortionate. The result is that many monkeys may never have any veterinary care even for their most basic needs such as worming and when they fall ill they simply die. This coupled with the fact that monkeys and humans can cross-contaminate means that many monkeys kept as pets will never reach maturity, and owners put themselves at risk of catching viruses and diseases from their pets.

Monkeys can live into their 40's and another common occurrence when we take monkeys in is, if the owner has managed to cope with their adolescent aggression, it is an extreme rarity that an individual is able to dedicate 24 hour care to their monkey for 40 years of their life. In fact the first monkey to ever live at the Sanctuary, Samba, was passed on to Len Williams in a lady's will on her death.

Finally, a life in isolation or with one or two other individuals in a climate and surrounding that is so far removed from their incredible rainforest home could never be enough for a monkey. No matter what the level of care, there is simply no comparison to a life of freedom in the wild and this problem will only be overcome with a change in the law in this country.

Suggested Lesson Plans

Write a monkey story

This is a creative writing exercise to allow the pupils to apply what they have learned about monkeys into a fictional story.

Ask the children to think of ideas for a monkey story. Their story could be about a monkey in the wild, at The Monkey Sanctuary or about a monkey being kept as a pet.

The children should plan their story to ensure that it has a beginning, middle and end and can be as imaginative and exciting as they like.

The class could create a collection of monkey stories which they could illustrate and bind as a book.

Hints and Tips

There are no strict guidelines for this activity and children should be encouraged to use the information that they have learned already to help them with their story. They could, if they prefer, write a poem about monkeys instead..

Draw, paint or make a monkey

Why not try a monkey-related art lesson? Accompanying this pack are a number of worksheets which children can use as a starting point for monkey art. You will find monkey mobiles, finger puppets, door hangers and masks.

Children should also be encouraged to create their own monkey artwork using materials available.

Design a Monkey Enclosure

The following workshop asks the pupils to design an enclosure or series of enclosures suitable for monkeys. The students can choose whether their design is for woolly monkeys or for capuchins and should show some knowledge of the needs of monkeys from what they have learned from their activity packs.

The children have been given the following tips in their packs to get them started.

You can decide whether the enclosure will be for woolly monkeys or capuchin monkeys and design it using the things you have already learned about monkeys. The following points are to help you with your ideas:

- 1. The monkeys move around a lot and so need as much space as possible*
- 2. As well as outdoor space, the monkeys need some shelter to keep warm and dry*
- 3. The monkeys prefer to spend time high up rather than low down. Think about this when designing both inside and outside spaces*
- 4. There must be lots of interesting things to keep the monkeys from getting bored*
- 5. USE YOUR IMAGINATION! To create a great monkey space you have to think like a monkey—what would you like to see in the enclosures?*

The final piece of work could be a model or a drawing or painting. The children should also think about what sort of building materials they might use.

Hints and Tips

You and the students have some pictures of our territory throughout this booklet and below are others. We build using wood and mesh but the students may want to use different materials.

Safety Hatch



Antecage for safe entry



Outdoor enclosure with runway



Heated hut for shelter



Make a pet trade poster

This workshop allows children to put the information that they have learned about monkeys in the pet trade into a creative piece of art work.

Start by asking the children what they have learned about monkeys as pets. Ask them whether they make good pets and why.

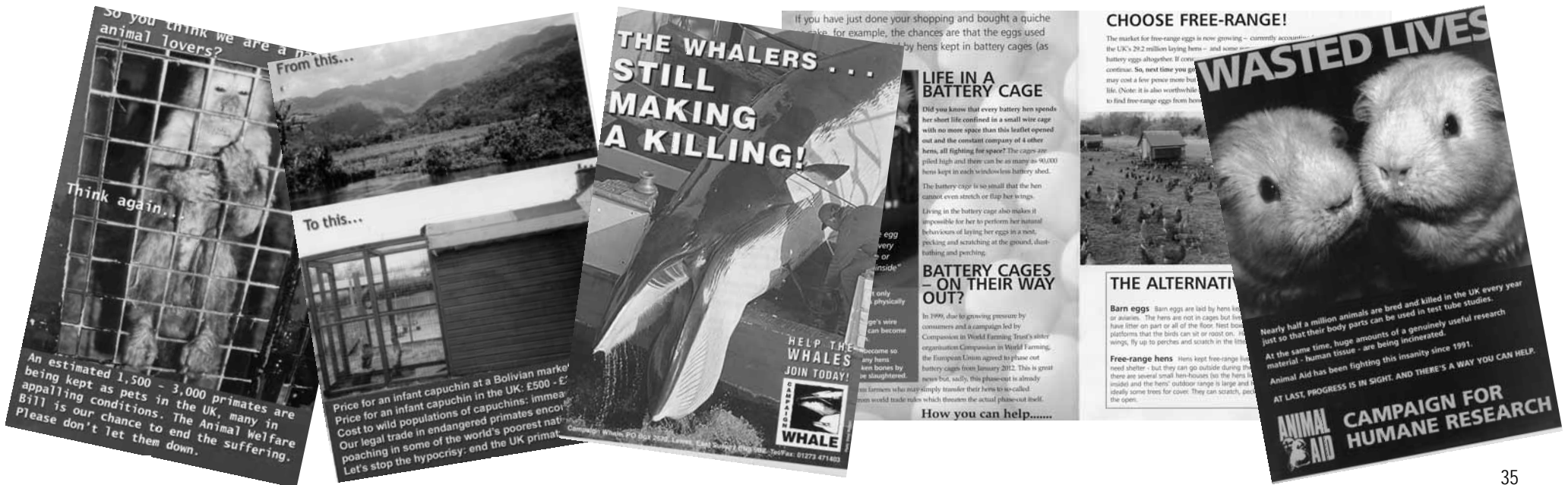
They have learned lots of reasons why monkeys are unsuitable to be kept as pets, among them are:

- They are aggressive and can hurt their owners
- They are intelligent and so need constant care and stimulation
- They need other monkeys to live with
- The rainforest is a beautiful and exciting place to live with masses of space and things to do. Nothing we could offer a pet monkey could possibly compare to this
- They often die young if they are kept as pets, or suffer ill health because they are not appropriately cared for
- They are often fed the wrong diet leading them to becoming obese and making it difficult for them to move around

Ask the children to create a poster to encourage people not to keep monkeys as pets. The poster can be a group effort or individuals can create their own. They should think about the message that they want to give people with their poster and the best, boldest and brightest way to put that message across.

Hints and Tips

The children have a number of illustrations in their Activity Packs that they could use to help them come up with visual ways of showing the problems facing monkeys kept as pets. Below are some further examples from different organisations, including Wild Futures.



Act out a monkey drama

The children have been given a list of woolly monkey vocalisations and information about how woolly monkeys behave in groups. This knowledge could be used to guide a drama lesson with the students playing the part of a troop of monkeys.

Help the children to develop a woolly monkey drama based around the day-to-day life of a troop of woolly monkeys in the rainforest.

The children can choose to be woolly monkeys, harpy eagles or jaguars and can only use the animal noises to communicate.

Why not develop this activity into an assembly performance that could be performed for other classes.

Hints and Tips

It is a good idea to decide on a plot beforehand and have a narrator to lead the group through the story so that it stays on track.

A typical story using the vocalisations may be:

A troop of woolly monkeys were foraging for food in the forest. Every now and then they would "eeolk" to each other to check everyone was ok (children make "eeolk" noise).

Whilst he was climbing high in the treetops, one of the male monkeys came across some delicious food. He began to trill (children make trilling noise) to tell the other monkeys where to find the fruit and they all joined in excitedly.

The noise of the monkeys trilling awoke a jaguar that had been snoozing nearby. The jaguar crept up on the monkeys and, just as he was about to pounce, the dominant male spotted him and began to yok (children make the yokking noise) loudly to warn the other monkeys of the danger. All of the males joined together, crashing through the branches and shaking them wildly at the jaguar to show off their strength and to prove that they were not scared.

The jaguar was afraid by all the noise and the huge adult males and decided to settle for a small bird for lunch instead. He skulked off into the rainforest and the woolies went back to their lunch.



The possibilities are endless.

conservation crazy!

Learning objectives:

- To learn about conservation and decide whether we think it is important
- To learn about the things that we do that can adversely affect the environment
- To learn about ways of conserving the environment and all of its inhabitants
- To help to develop empathy and respect for the environment and all of its inhabitants

What is conservation?

When we refer to conservation, it is usually in relation to the preservation of the environment around us. Conservation simply means to take care of something and ensure that it doesn't run out or become damaged.

We have already discussed some areas of conservation in this pack – the conservation of the rainforest and the conservation of monkeys in the wild and captivity but the concept is far more wide-reaching that these two examples and encompasses so many different areas that it would be impossible to list them all in this pack. We will however, consider some conservation issues and what we can do to help.

Pollution, global warming and the “greenhouse effect”

In the earth's atmosphere, there are a number of gases known as “greenhouse” gases. These gases trap and hold heat radiated from the sun therefore allowing heat to come in but not to go out again – hence the “greenhouse” effect. This greenhouse effect occurs naturally but has been accelerated by human activity to the point where it is causing significant problems as the earth is not losing as much heat as it used to and so the temperature is gradually rising.

The human activity that adversely affects global warming is CO₂ emissions from the burning of fossil fuels and deforestation which means that less trees are absorbing less CO₂ and thus the levels in the atmosphere rise. The fact that industrialisation has increased both of these activities on a huge scale has meant that the greenhouse effect has been accelerated significantly by humans.

The effect of global warming is not just that our summers get hotter and winters milder, but that sea levels could rise by 20cm by 2030 as glaciers melt, destroying areas of coastline, killing millions of people or at very least destroying their homes and livelihood. As temperature increases further, famine and drought might become commonplace in the UK and other countries not normally affected by this type of phenomenon and farming and crop cultivation will suffer as a result. Water quality will be reduced as algae flourishes in the hotter climate and the heat increase will mean creatures and plants will have to adapt and if not, they might face extinction. These are just a small number of problems brought to light by global warming and some of the reasons that this issue has become more and more important to us in recent years.

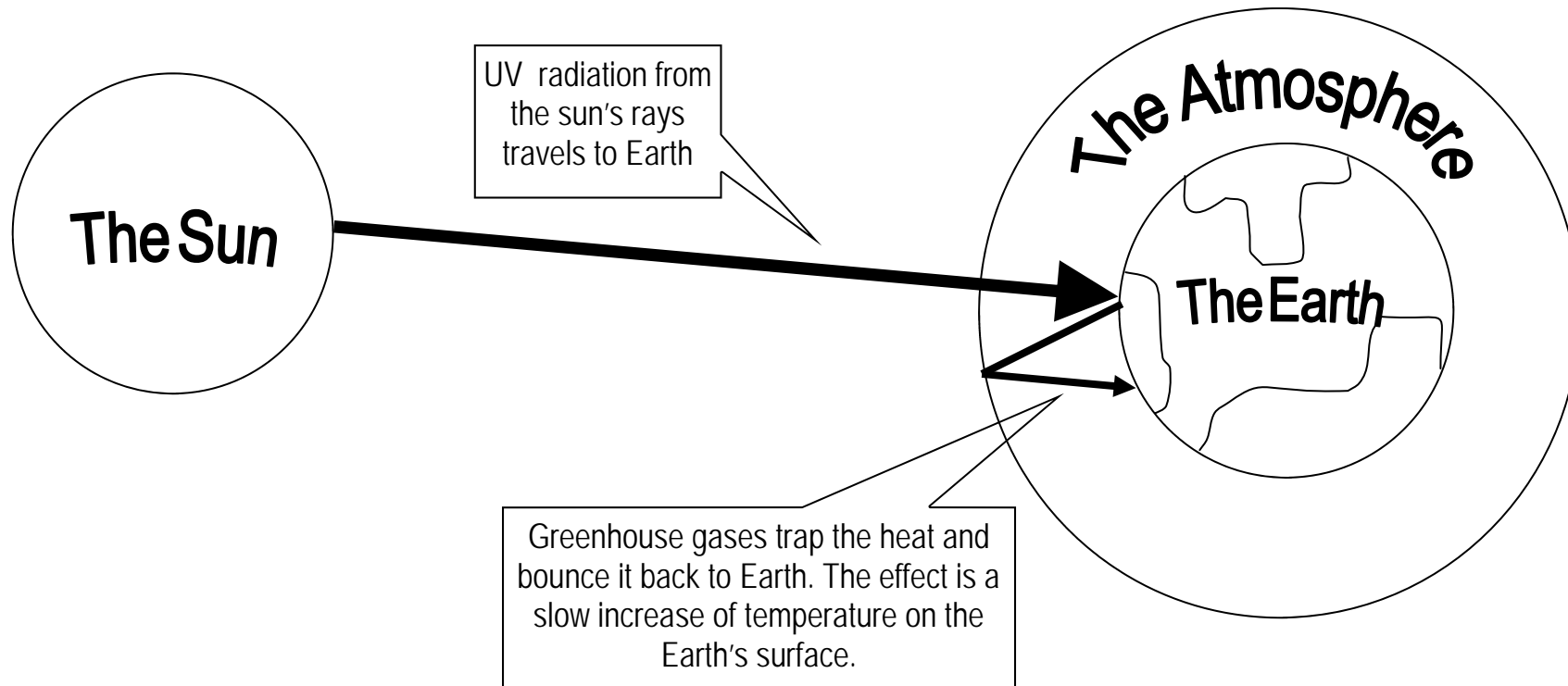
Ways in which we can rectify the problem of global warming is by reducing our use of fossil fuels such as coal, gas and oil, finding alternative energy sources which are renewable such as wind and solar power, recycling all that we can so that new resources do not have to be found and being as “energy efficient” as possible.

“Energy Efficiency” means walking places instead of using a car, putting an extra jumper on instead of turning the heating up if we are cold or turning the heating down instead of opening a window if we are too hot. Other ways in which we can be more energy efficient is by taking a shower instead of a bath so that we use less water, only doing our laundry when we have a full load instead of one or two items, turning lights off when we leave a room and shutting doors to preserve heat. The list is endless and we will look at other ways in which we can help to curb global warming in the activities accompanying this section.

The destruction of the ozone layer

Ozone is gas and is actually a very highly reactive form of oxygen. Ozone is present in our atmosphere but 90% of the world's oxygen is concentrated between 10km and 50km above the ground in the stratosphere. Whilst there is only a very thin layer of this gas, it is extremely important as it filters harmful ultraviolet radiation from the sun.

In the mid-eighties, scientists discovered a lessening of ozone levels above the Antarctic which became known as the “Ozone Hole”. They established that the “hole” had been caused by a chemical reaction between human-made chemicals called chlorofluorocarbons (CFC's) and ozone which converts the ozone gas into normal oxygen and thus rids it of its protective properties.



There are a number of far-reaching results of this depletion in ozone; the risk to human health as a result of exposure to UV light has meant an increase in the occurrence of skin cancer, particularly in the southern hemisphere, negative effects on aquatic life and ecosystems and the deterioration of manmade materials such as plastics are just a few of the problems that we know about.

Because of this, a number of countries implemented new laws which meant that CFC usage had to be reduced however, as it can take well over a decade for the dangerous chemicals to reach the ozone layer, the hole will continue to grow until at least 2050. Some 140 countries signed the Montreal Agreement and committed to reducing and eventually phasing out the use of CFC's and ozone depleting substances but, unfortunately, many developing countries saw the limitation on their use of CFC's as a barrier to their industrialization and chose not to enter into the agreement.

The ozone layer was one of the first big environmental issues to come into the public consciousness and remains a problem for us today. Sadly, without a total end to the use of CFC's and implementation of suitable alternatives, the problem might continue for generations to come.

People problems and fair trade

When we think about conservation, we normally think about animals, plants and the environment. Another huge issue for conservation is the protection of people. The Fair Trade Foundation is working towards this goal.

Fair trade is a very simple concept; it means that a fair price should be paid to the producers of a product. Sadly, it is all too common that the opportunity to make money is given precedence over a fair deal and it is this situation which has led to the Fair Trade Foundation being established.

“Cash crops” such as coffee, tea, cocoa and bananas are generally grown in developing countries where the majority of people are living in poverty. The people growing these crops work as hard as any farmer in any part of the world and yet, for many years, they have been paid a pittance for their products due to social pressure and exploitation, and so that the rich distribution companies of the West can make more of a profit on them.

This process means the people in the developing countries are working full time for companies in the West but because they are never paid fairly, they cannot pull themselves out of poverty.

The effect of this is not just that workers do not receive a fair wage, but it means that child labour is often utilised to keep costs down, working conditions and working hours are terrible with no money or time to enforce health and safety standards. Opportunities for women are severely compromised and there is no security of work because there are no fixed-term contracts as the rich distributors will change suppliers based on a drop in market price meaning that there can be work one week and none the next. Compared to the vast array of rights, laws and unions we have at our disposal here in the UK, this situation is hard to comprehend and it is this severe imbalance of rights that the Fair Trade Foundation was set up to help rectify.

In some non-fair trade banana plantations, pesticides used on the crop can have severe side effects on the workers. Men have become sterile, women have had an increased rate of leukemia and children have been born with deformities.

Workers on tea plantations can suffer serious health problems from the sheer amount of work they are expected to do, in particular debilitating back problems. However there is no statutory sick pay, no work means no money and no money means nowhere to live. Living conditions are poor but the houses are owned by the plantation so complaining might mean that the workers and their families end up homeless.

Cocoa growers often suffer from drops in the market value and have to choose between food and sending their children to school. Medicines can only be provided for working members of the family in times of hardship and so illness and lack of education are added to their already problematic lives.

The Fair Trade Foundation is not a charity as it is not giving support for no return, it is simply paying what should have been paid all along for products which we value here in the UK and Western countries.

The implementation of Fair Trade means that the people of the South can ensure the following:

- That their wages and product prices are fair
- Improved working conditions and health and safety standards
- Long-term contracts and security



- Opportunities for women and strict control over child-labour
- The ability to ensure sustainable development for future generations' benefit

It is not only trade in food products that is unfair but also clothing and household goods. Whilst the Fair Trade Foundation initially focused more on food products, it is also working on standardised conditions for workers in other areas of international trade in the hope of making its work more widespread.

In the two years from 2001, sales of Fair Trade goods rose by 83% and the estimated sale value of Fair Trade goods in 2004 in the UK alone was £140 million.

The way in which we can help to support this cause is simply by ensuring that everyday items we buy bear the Fairtrade logo. Some products are fairly traded but do not yet carry the Fairtrade mark, so the other way to check if the items you buy regularly are fair trade is by checking the website for BAFTS (The British Association for Fair Trade Shops) www.bafts.org.uk which lists the criteria and its members.

Parts of the information in this section are used with the permission of the Fair Trade Foundation www.fairtrade.org.uk

In this section we have covered only a few of the issues relating to conservation, in addition to those addressed in the other sections of this pack. The area of conservation is vast and everything that we do can potentially have an adverse affect on something or someone elsewhere in the world. The following activities aim to teach children about simple and effective ways that they can conserve their planet and its inhabitants in their everyday lives.



Suggested Lesson Plans

How environmentally friendly am I?

In this workshop, the children are asked to think about how environmentally friendly they are and find out what changes they can make to limit their effect on the environment. The activities relating to this workshop should be revisited once every week for a month so that the children can assess what improvements they have made and gain a sense that small things that they change can make a difference.

Each child has Personal Conservation Chart in their Activity Packs which they can use to plot their practices and gain "environment points" when they make changes in their everyday life to make themselves more environmentally friendly. Included with this pack is also a chart which can be used for the class to add up their "environment points" collectively and get a sense of teamwork.

Start the first session on a Monday morning and ask the children the following questions about what they did over the weekend:

1. How many items did you recycle – including giving clothes/books to charity shops, reusing bags and wrapping, taking items to a recycling plant etc?
2. How many times did you walk or cycle when you could have been given a lift in a car?
3. If you used the car, how many times were there more than two of you in the car?
4. How many times did you eat or use something that was fairly traded (look for the logo)?
5. How many times did you take a shower instead of a bath?
6. How many times did you turn a light off when you left the room?
7. How many times did you put an extra layer on if you were cold or turned the heating down if you were hot?
8. How many appliances did you switch off at the mains when you finished using them?
9. How many times did you or your family use the dishwasher when it was completely full or:
How many times did you or your family wash a full load of laundry?
10. How many other things did you do that helped the environment and what were they?

They may not be able to remember all of them but can estimate those answers they are not sure of. They should note their individual answers in their chart and their totals should be added up to be entered in the class chart. The total of their answers are the total "environment points" awarded. The aim is to see them increase over the month.

To ensure the children understand why they receive points for the above actions, an explanation of the environmental benefit of all of the above actions are outlined in the Hints and Tips section.

Over the course of 4 weekends, ask the children to try to note how many times they do any of the 10 actions during those two days. It is a good idea to update on Monday mornings while it is still fresh in their minds. Each Monday they can fill in their charts and the class chart to get an idea of the changes they are making.

At the end of the month, complete the exercise for the final time and sit down with the class to see what they have achieved.

Hints and Tips

Try to encourage the children to be as honest as possible in their answers - the changes are easy to make and so they can get a great sense of achievement at the end of the exercise when they see how much they have been able to do by making relatively small adjustments.

Here are just some reasons that the actions suggested are beneficial:

1. Recycling is a great way of preserving the earth's resources and ensuring that materials that can be used again are not wasted.
2. Petrol and diesel come from oil, which is a fossil fuel and has to be taken directly from the ground. Because fossil fuels take millions of years to form, we are running out fast as our demand for them by far outstrips the oil available. Using a car less means that we can preserve natural reserves for longer because we use less petrol. Cars also pollute the atmosphere and so walking or cycling wherever possible is a great help in two ways.
3. If you do use a car, then sharing lifts with friends or family means that you do not take two vehicles when you could just take one. This can more than half your fuel consumption and thus, help the

environment.

4. Fair Trade goods mean that a fair price has been paid for a product and that people are not being exploited for our benefit. Supporting people is as important as conserving the environment.
5. Showers use less water than baths and so showering helps to conserve more of this precious resource.
6. Turning lights off saves electricity and money and makes you more energy efficient.
7. Central heating is expensive and uses lots of energy, don't waste it!
8. A certain amount of electricity "leaks" back into the mains whilst an appliance is switched on. In the UK alone we waste 2 power stations worth of electricity each year by leaving our appliances on standby, and following are the estimated annual CO₂ emissions from appliances left on standby (Source: Energy Saving Trust):
 - Stereos - 1,600,000 tonnes
 - Videos - 960,000 tonnes
 - TVs - 480,000 tonnes
 - Consoles - 390,000 tonnes
 - DVD players - 100,000 tonnes
 - Set-top boxes - 60,000 tonnes
9. Only using electrical appliances like dishwashers or washing machines when they are full saves energy. Setting them at a cool temperature or on a short cycle is also a great energy saving technique.
10. The children may have lots more ideas and should be given the opportunity to talk them through and take action using their own initiative. Remind them that tiny changes are as important, and often easier to stick to, than large ones so everything they do can count.

Recycled art

This workshop is designed to get students to think about recycling and ways in which recycled materials can be used.

Together with the children, make a collection of interesting items such as bottles, cans, newspapers and magazines, packaging and boxes and anything else they can find that might be useful. The class could perhaps set up a collection point in the school and they can build up their collection of materials from classroom waste or items brought in from the children's homes.

Once there is a good selection of items, ask the children to make a piece of artwork using their recycled materials. This could be a group exercise where they create a large piece of work with each child adding their own ideas or it could be an individual effort. The artwork could be a sculpture or collage, dependant what they would most like to produce.

Hints and Tips

This workshop can form an ongoing project spanning a number of lessons or students could be asked to create their installation "against the clock" in one lesson. This could create a very exciting and focused lesson but the project would allow for more thoughtful planning.

When the items are finished, why not make a display with each student writing a short summary on their piece of art and how they created it?

It is a good idea to offer them themes so that they can focus their work. They could be asked, for example, to create recycled animals, houses, portraits of themselves, friends or family, or a landscape scene, amongst others.

Long Term Projects

For conservation to work, it has to be a continuing initiative so why not look into setting up the following ideas at your school. These projects can involve the entire school and can be established and used for years to come.

School recycling centre

One of the best things that children can do to help the environment is recycling. Why not make a school recycling centre? The children can design and make recycling bins, pupils can be nominated recycling monitors and classes could make recycling their waste commonplace.

The children could write letters to their council to find out about facilities in their local area and use these to learn more about the importance of recycling.

Conservation area

Most children love nothing more than getting their hands dirty and spending time outdoors. It's amazing what can develop when an area of land is set aside and allowed to grow wild. Choose a small area of your school field and leave it to develop naturally. Use the conservation area for mini field studies, looking at plants and insects.

Energy efficient school

Ask the children to apply what they have learned about energy efficiency and conservation to their school. Some of the ideas may not be practical due to budget but a "lights off" and "doors shut" policy is a starting point.

This pack was produced with thanks to the following organisations for their support and kind donations of information and images:

Animal Aid

www.animalaid.org.uk

Campaign Whale

www.campaign-whale.org

Compassion in World Farming

www.ciwf.org

Energy Saving Trust

www.est.org.uk

The Fair Trade Foundation

www.fairtrade.org.uk

FSC

www.fsc-uk.info

Ikamaperou

ikamaperou@yahoo.fr

Jungle Friends

www.junglefriends.org

Mountain Equipment Co-op

www.mec.ca

Recycle Now

www.recyclenow.com

Survival International

www.survival-international.org