

## Rainforests Assembly

These notes run alongside the PowerPoint presentation. They provide considerable amounts of additional information, which you may choose not to impart, or to touch upon only briefly during the assembly. However, if required, there is plenty of background to enable you to answer questions that may arise. There are also suggestions for interaction:

### **Slide 2: What is a rainforest?**

Ask the children what they understand by the term rainforest. Is it a topic that they have already learned about in school - what do they remember if so?

**Slide 3:** Rainforests grow in hot places where there is a lot of rainfall each day. They receive around 200 to 1000 cm of rainfall a year. For comparison, the UK has around 80 to 140 cm of rainfall per year, but there are many days that don't have any rain at all. Tropical rainforests are so warm and damp that they are able to produce up to 75% of their own rainfall through evaporation and transpiration.

**Slide 4:** The stable climate of rainforests means that most of the trees are evergreen, growing leaves all of the time. There are some deciduous trees, too (those that lose their leaves) including the Brazil nut tree, which can live for a thousand years! The trees and plants grow in four layers: emergent, canopy, understory and forest floor. Each of these layers has its own distinct characteristics, but each one is interdependent with the others - they all depend on each other for survival.

### **Slide 5: Where in the world do we find rainforests?**

This map shows areas of rainforest shaded in green. Point out the equator (or ask children to come up and locate it on a map or globe). Rainforests are mostly found around the equator, between the Tropic of Cancer and the Tropic of Capricorn.

**Slide 6:** The world's largest remaining tropical rainforest is the Amazon. This covers countries such as Argentina, Peru, Paraguay and Uruguay, but 60% of the Amazon lies in Brazil (ask children if they can locate the Amazon rainforest on the map).

**Slide 7: What types of plants live in the rainforest?**

The trees in a rainforest have adapted to suit the warm, wet climate. Many have thin bark to prevent other plants growing on them and to help them get rid of excess moisture. They grow straight up, only sprouting branches once they reach the light of the canopy. Many plants have pointed leaves designed to allow excess water to drip off. Some of the plants in the rainforest are carnivorous! They use either sweet nectar, or the smell of rotting meat to lure flies and other insects, before trapping and digesting them!

**Slide 8: What types of animals live in the rainforest?**

The rainforest is home to numerous animals, from millions of insects to large predators. The emergent layer of the forest is home to smaller creatures that fly and glide through the thin branches. The huge harpy eagle (left) is one of the top predators here. Orangutans (centre) also come from the rainforests of Borneo and Sumatra - in fact their name translates to 'person of the forest' in Malay. The magnificent jaguar (right) is also found in the Amazon rainforest where it hunts almost any animal it can find, from deer and monkeys, to tortoises and fish.

**Slide 9: Do people live in the rainforest?**

The world's tropical rainforests have been home to tribes of indigenous peoples for tens of thousands of years. From the Mbuti, Aka, BaAka and Twa peoples of the African Rainforest to the hundreds of tribes in the Amazon rainforest, including the Yanomamo (pictured) and Kayapo peoples, there are those whose ancestors lived sustainably in the rainforest for centuries. Prior to the arrival of Europeans in the 1600s, it is estimated that there were nearly seven million native people living in South America. Within the next 100 years, the population dropped by 90% due to killings and the diseases brought by colonists. Many of the people who survived did so deep in the rainforests.

**Slide 10: Why are rainforests so important to look after?**

Ask the children whether they think it is important for rainforests to be protected. Could the people and animals who live there live somewhere else? Would it matter if they did? Would it be possible for the plants to grow somewhere else?

**Slide 11: Rainforests are the most diverse ecosystems anywhere on land.**

Rainforests are Earth's oldest living ecosystems with some having survived in their present form for at least 70 million years. They contain an enormous amount of biodiversity. Over half of the existing animal and plant species in the world live in rainforests. So do a third of the world's bird species and 90% of its invertebrates. A 10 square kilometre patch of rainforest could contain as many as 750 different tree species, compared to the 40 species found in the whole of the UK.

**Slide 12: Rainforest trees and plants help provide oxygen**

Rainforests are also vitally important for the atmosphere of our Earth and are often called the "lungs of the World". This is because the plants of the rainforest provide 20% of the Earth's oxygen. They also absorb about 20% of the world's human-caused carbon dioxide emissions.

However, for the first time, in 2021, it was found that the Amazon rainforest is now emitting more carbon dioxide than it is able to absorb, largely due to fires from tree clearing for beef and soy production.

**Slide 13: Plants from the rainforest can help treat diseases.**

A quarter of all current western medicines use ingredients that are derived from rainforest plants. These include the Madagascar Rosy periwinkle, from which an extract is used to treat leukaemia in children, and the cinchona tree from which quinine is derived – this is used to treat malaria. 70% of the plants known to have anti-cancer properties come from the rainforest. Yet only about 1% of plant species have been studied, so there are very likely to be many more cures to illnesses waiting to be discovered. These could be lost before their uses are ever known about.

**Slide 14: Rainforests are an important source of foods**

It is estimated that 80% of the world's diet originated from rainforest plants. Many of the foods we eat daily such as pineapples, potatoes, cocoa (for chocolate), coffee, rice and sweet potatoes originally came from the rainforest. Many food sources are still being discovered in the rainforests.

People in countries such as the UK take it for granted that they will be able to eat food that comes from rainforests. Some of these ingredients come from places where the local population does not have access to sufficient food.

Do we all have a right to eat food and use plants from anywhere in the world?

### **Slide 15: Why are the world's tropical rainforests under threat?**

Despite their huge importance, rainforests are being cut down and cleared at a horrifying rate. Every day, around 10,000 acres of Amazonian rainforest is cut down. Robert Walker, a researcher at the University of Florida's Center for Latin American studies, has predicted that unless a level of help never seen before happens, the greatest rainforest on Earth will be wiped out by 2064.

Ask the children what they think the rainforests are being cut down for.

### **Slide 16: Cattle farming**

As we have seen - deforestation is now such a problem in the rainforest that, in 2021, it was found that human activities and rising temperatures in the Amazon rainforest now produce more Carbon Dioxide (CO<sub>2</sub>) than the trees and plants are able to absorb. One of the main reasons for this is that trees are cleared and burned to make space for cattle farms and soy plantations. Around 70 to 80 million cows are farmed for beef in the Amazon rainforest. This is up from around 5 million in the 1960s and, as people grow more wealthy, demand for beef is growing. Not only is land cleared of trees for the cows to live on, it is cleared to plant soybeans for them to eat.

### **Slide 17: Logging for timber and wood pulp**

Tropical rainforests supply around a fifth of the world's industrial wood products. The trees are used for everything from furniture and railway sleepers to packing crates for motorbikes and even for chopsticks. Reduced Impact Logging is a method of cutting trees down where higher value species are cut down and other trees around it are left in place. Some furniture stores such as Ikea, have promised to work with the Forest Stewardship Council to make sure that the wood they use comes from carefully managed forests.

### **Slide 18: Monoculture farming for crops such as palm oil and soy**

There is a huge global demand for certain food products that grow well in the same tropical climate where rainforests thrive. Instead of the species rich rainforest, huge swathes of land have now been cleared and planted with single (monoculture) crops such as soybeans for animal feed and palm oil plantations (pictured). These single crops don't provide a suitable habitat for lots of different creatures to live in. It's extremely difficult to find products without palm oil in them; it is used in everything from biscuits to soaps. Although there are some specially managed palm oil farms, it can be

almost impossible to work out whether the palm oil in a product came from a legal or an illegal plantation.

### **Slide 19: Mining for precious minerals**

Many precious metals and other minerals can be found underneath the ground where rainforests grow. Areas of land are dug up for gold and diamonds as well as for oil to make fuel and plastics. Not only does digging up the land to find these resources harm the trees and plants, it also displaces the people and animals who made their homes there. Toxic runoff from the mines gets into the water and soil nearby causing further environmental harm. More than 70% of the Peruvian Amazon is now under concession for oil and gas, which means the government has given permits for oil and gas companies to search and dig there.

### **Slide 20: Hydroelectric dams for electricity**

Hydroelectric dams are often used as examples of greener energy, but in the Amazon rainforest, the opposite is true. Building dams can lead to environmental catastrophe in many ways. Not only does building the dams involve cutting down numerous trees and displacing local peoples and wildlife, the dams often release greenhouse gases from rotting vegetation as well as causing terrible floods that devastate local populations of people and animals. In many cases, the electricity produced by the dams is destined to be used by huge paper mills, palm oil processing plants and other mines and factories that will lead to further environmental harm.

### **Slide 21: How can we help protect the remaining rainforests?**

The rainforests are a long way away. Is there anything that we can do from such a distance to help? Ask for ideas - children may already be familiar with some campaigns that are intended to help.

### **Slide 22: Look out for labels when you shop**

There are organisations that try to ensure that products from the rainforests are grown in sustainable ways and that the people who grow them are paid fairly and work in good conditions. You can help to minimise harm to the rain forest by checking food and other products for labels from Fairtrade, The Rainforest Alliance, The Forest Stewardship Council (FSC) and the Roundtable on Sustainable Palm Oil (RSPO).

### **Slide 23: 'Adopt' an acre of rainforest or an endangered animal**

There are several projects running (such as the World Land Trust and SaveNature.org) where you can pay for an acre of rainforest to be handed over to wildlife groups to care for. You can also 'adopt' an animal such as an

orangutan, by sending money to certain charities. This doesn't mean that a rainforest animal comes to live at your house! Instead, the money goes to fund projects designed to care for those animals. You usually receive updates from the charity about the work they are doing, together with photos of the animals.

### **Slide 24: Listen to Indigenous peoples**

If we are going to save important ecosystems such as the tropical rainforests, it's really time to start listening properly to the true experts: the indigenous peoples who have lived in these regions for so many generations. Over thousands of years, the indigenous peoples of the Amazon have learned how best to maintain the delicate balance of the ecosystem to benefit people and the environment. Studies have shown that, in lands where the ownership of the land has been left with, or returned to, Indigenous peoples suffered least from forest clearing.

Alicia Cawiya is the Vice-President of the Huaorani Nation of Ecuador and is one of the leaders of the movement against oil exploitation in her region. This image shows her campaigning in 2013 against companies drilling for oil in the Amazon. Her arguments were ignored and the drilling went ahead.

### **Slide 25: Did you know that The UK has its own temperate rainforests?**

Rainforests don't just grow in tropical areas. There's a type of rainforest that is even more rare than tropical rainforest and it grows in parts of the UK! Temperate rainforest is found along the West coasts of England, Wales, Scotland and Ireland (including North Ireland). Temperate rainforest is habitat for some of the most important biodiversity in the UK. There aren't Jaguars or giant carnivorous plants, but there are many rare mosses and lichens as well as numerous other endangered and protected species.

These rainforests are also under threat from climate change, atmospheric pollution and from clearance to make way for train lines or roads. You might live near some temperate rainforest - perhaps you could find out if there are any local campaigns to help protect it.

### **Slide 26: Pause for thought**

**“We must protect the forests for our children, grandchildren, and children yet to be born. We must protect the forests for those who can't speak for themselves... birds, animals, fish and trees.”**

Quatsinas (Hereditary Chief Edward Moody) Nuxalk Nation

