



S1 SOCIAL SUBJECTS

RAINFORESTS PROJECT

Guide to using this booklet

This is your project for booklet for Social Subjects home learning. All activities can be completed by typing straight onto the document (download and save a copy first), print a copy (if you have a printer) and write on it, or write your answers on paper.

Our new topic is Natural Regions and, whilst at home, you will be focussing on Rainforests. If you have any questions or issues, please get in touch with your Social Subjects teacher.

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Each section of the booklet will have the key information that you need. You will then have a range of activities to complete. Try and work through each task in order as you will sometimes need information from more than one section.

World Climate Zones

Think about these questions:

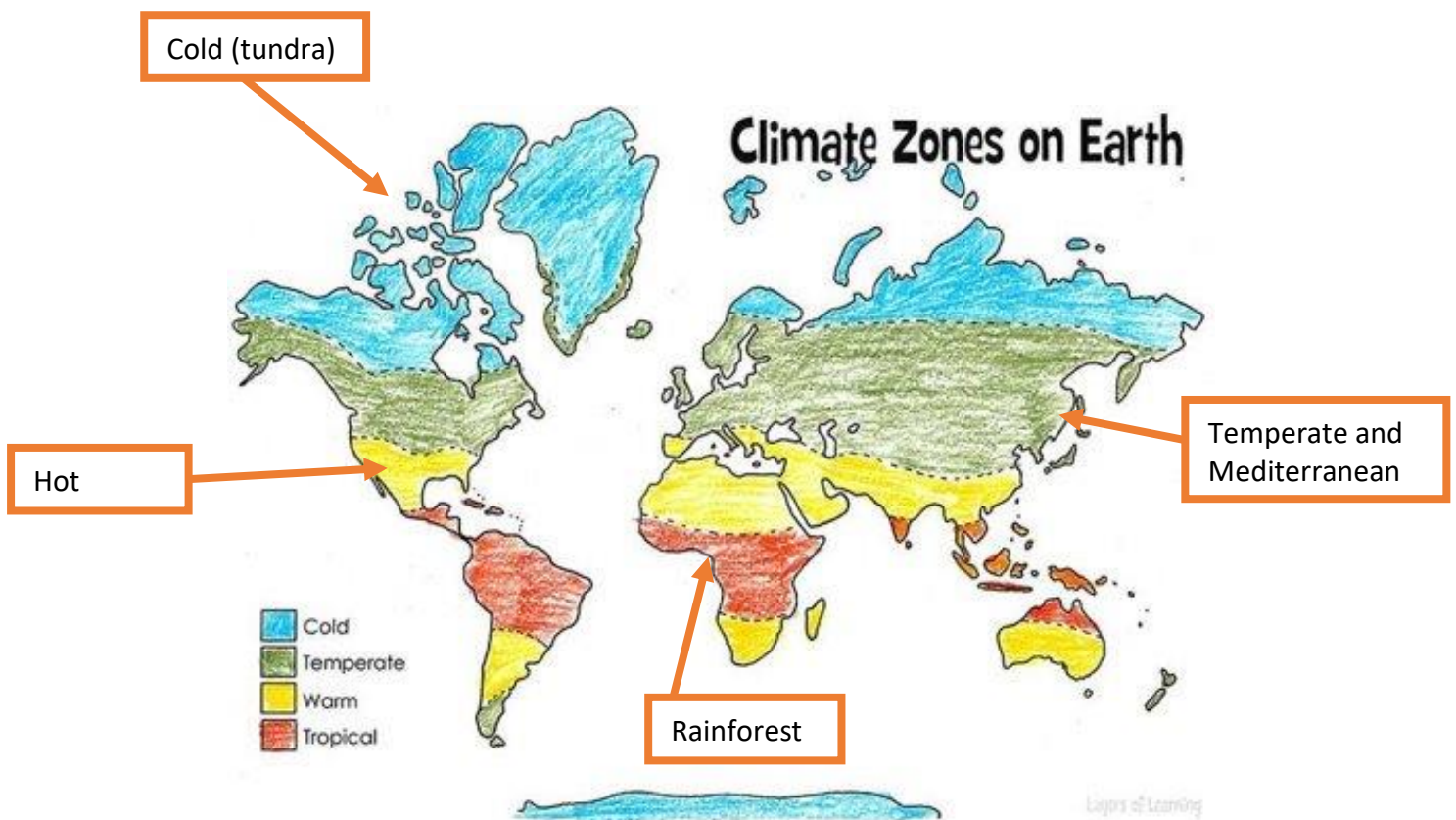
- Are all places around the world the same?
- Can people live in all parts of the world?
- Can different plants and animals live in all parts of the world?

The answer to all of the questions is 'no'.

There are **five** main natural regions around the world:

- Cold desert (Tundra)
- Temperate
- Mediterranean
- Rainforest
- Hot desert

Each of these regions have specific climatic conditions that lead to different lifestyles, a variety of problems and lots of creative solutions



Each zone is very different and it is important that you know where each zone is, what their climate is like and specific people, plants and animals that live there.

TASK 1:

Using the table below and the information on the next two pages, takes notes on each of the zones.

Region	Location	Climate	Plants	Animals	People
Rainforest					
Hot desert					
Mediterranean					
Temperate					
Cold desert					

Rainforests:

- Location – around the equator in Africa, Asia, South America and Australia. The largest is the Amazon Rainforest, South America
- Climate – warm and wet (they have no seasons)
- Plants - 170, 000 different plants grow in the rainforest, including orchids, lilies and Venus fly traps
- Animals – thousands of different species live in the rainforest, including 500 species of frog and 1300 species of butterfly
- People - rainforests are home to tribal peoples who rely on their surroundings for food, shelter, and medicines.

Hot desert:

- Location – 15-30° North and South of the Equator. This includes countries like Egypt, Australia and USA
- Climate – very hot and dry. Summer temperatures reach well over 40°C
- Plants – a limited number of plants grow due to the climate, but cacti and Joshua trees are able to survive
- Animals – many different animals live in the desert, including camels, snakes and scorpions
- People – hot deserts are home to tribes who are often nomadic. Desert nomads survive in harsh desert climates by continuously moving to find water and grazing land for livestock

Mediterranean:

- Location - round the Mediterranean Sea, in southern Europe and north Africa, but also on the west coast of the USA
- Climate - hot dry summers and mild wet winters
- Plants -mainly scrub, made up of flowering shrubs and some small evergreen trees, such as cork oak
- Animals – many animals live in the Mediterranean, including lizards and coyotes

Temperate:

- Location – 40-60° North and South of the Equator, including northwest Europe, New Zealand's South Island and Tasmania, Australia
- Climate - these area experience mild summers and winters with average temperatures varying between 15 °C and a few degrees above zero in winter
- Plants – Lots of trees grow in temperate areas, creating large forests
- Animals - lots of woodland animals live in temperate areas, like badgers, woodpeckers and spiders

Cold desert (Tundra):

- Location – 55-70° North of the Equator, in places like Siberia and Alaska
- Climate – the climate is very cold and has little rainfall; winds can also be very strong. The temperatures stay below 0°C most of the year. The ground remains frozen, apart from a few centimetres of thaw in the summer
- Plants – despite being so cold, around 1700 species of plants grow, including arctic moss and dwarf shrubs
- Animals – lots of animals also live in the tundra, including caribou, polar bears and wolves
- People – there are many groups of people indigenous to the Arctic, including Inuit. They adapted every aspect of their lifestyle, from shelters, to food, to transportation, in order to survive in the cold north

Rainforests

If you can, watch this short video clip (<https://www.youtube.com/watch?v=JEsV5rqbVNQ>) and answer these questions as a little introduction to Rainforests:

1. What percentage of the world's plants and animals are found in the rainforest?
2. What are habitats?
3. What percentage of the Earth's surface do rainforests cover?
4. How long is the Amazon river?
5. How many layers does a rainforest have?
6. Which layer do most animals live in?
7. How big can tarantulas grow to?
8. Why do chameleons change colour?

TASK 2:

Let's test your knowledge by doing a short copy and complete passage. All the words you need are in the word box and can **only** be used once.

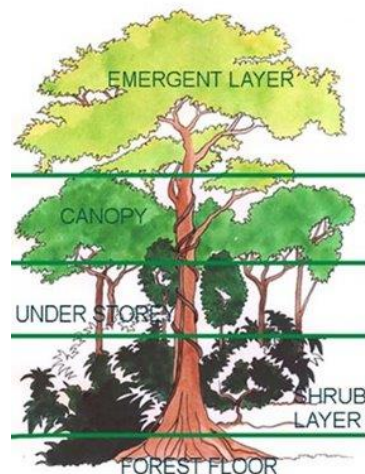
Tropical rainforests are found near the _____ and in between the Tropics of C _____ and C _____. The main rainforests in the world are the A _____ Rainforest, the C _____ and the I _____ Rainforest. In these places the climate is _____ and _____.

Word box:

Equator	Amazon	Capricorn	Congo	Wet
Cancer	Indonesian	Hot		

Layers of the rainforest

There are 5 main layers of the rainforest: emergent, canopy, under canopy (under storey), shrub layer and the forest floor (or leaf litter layer). Different plants and animals live at each layer.



The forest floor

It is dark, damp, full of many dead leaves, twigs and dead plants. The forest floor is dark due to the trees above stopping the sunlight from entering the forest. It is estimated that only 2% of the sunlight actually reaches the floor. Jaguars in South America, gorillas and leopards in Africa and tapirs and tigers and elephants in Asia live at the layer.



Shrub Layer

The ground level is very dark and damp. Very little sunlight reaches the forest floor, so there are not many plants and trees.



Under storey

It has dense vegetation and not much light. Birds, butterflies, frogs and snakes live here. Lianas are vine-like plants, that use trees for support, so that they can climb to the canopy. There they can get sunlight to help them grow.



Canopy

Much of the rain is stopped by the thick foliage. Most trees in the forest grow to this height. There are plants that grow in the canopy layer. Their roots don't reach the ground. These are called air plants. Birds, monkeys, frogs, and sloths, as well as lizards, snakes and many insects live here. The forest has an evergreen appearance, as trees grow all year around.

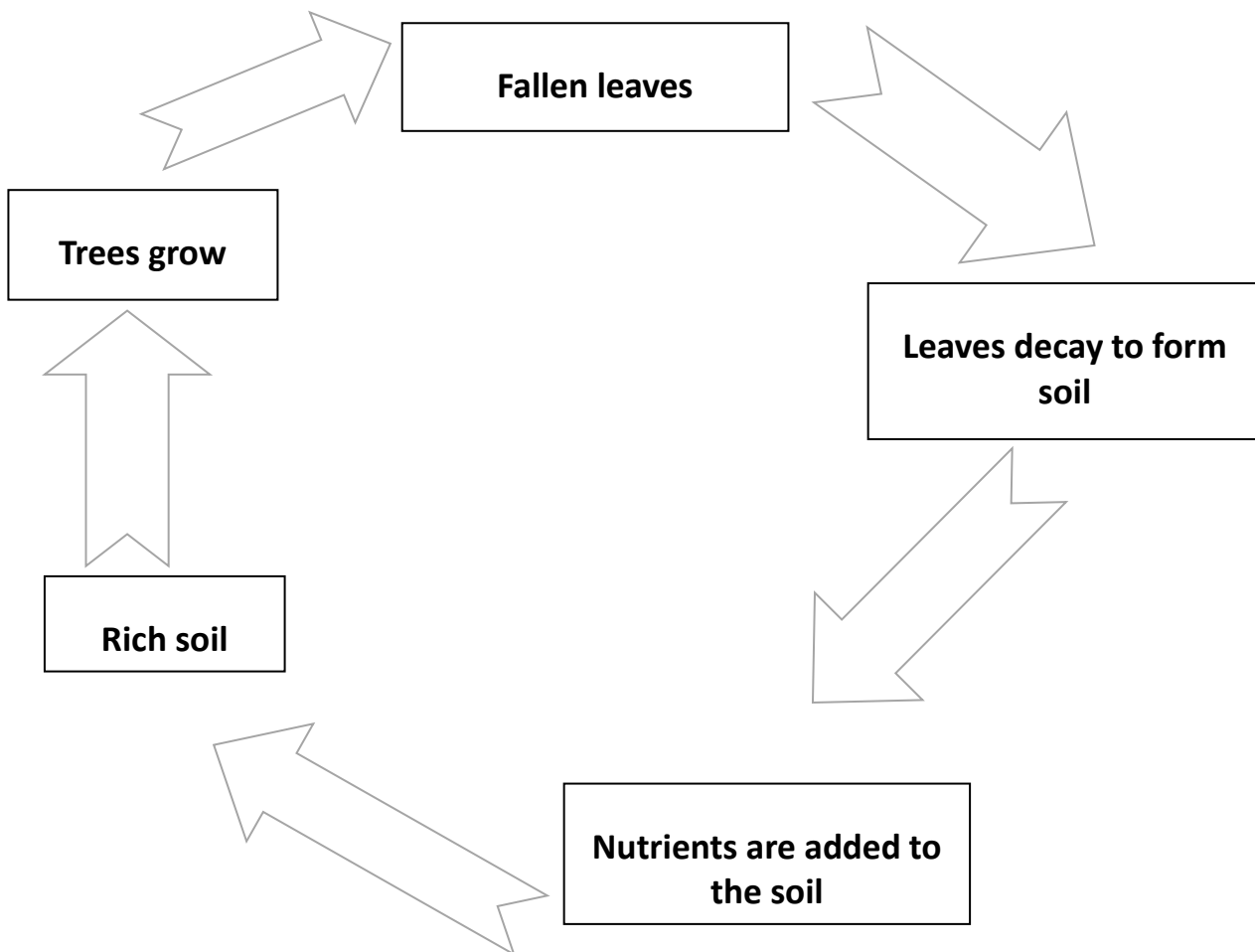
Emergent

It is very sunny here because it is the very top. Only the tallest trees reach this level. Birds, butterflies and small monkeys live with bats, snakes and bugs live here.



The Nutrient Cycle

The forest canopy protects the soil from the heavy, daily rain. The tree roots help to keep the soil together. The soil is very fertile (good for growing things) due to leaves continually falling and decaying on the forest floor.



Rainforest Climate

Equatorial rainforests have hot and humid climates where it rains virtually every day.

The level of rainfall depends on the time of year.

Temperatures vary through the year - but much less than the rainfall.

The weather in equatorial areas is almost the same every day – warm mornings, wet afternoons and clear evenings. This is caused by **convective rainfall**.

TASK 3

Add the labels to the diagram to explain the process of convective rainfall.

Stage 1- The sun heats the ground and warm air rises.

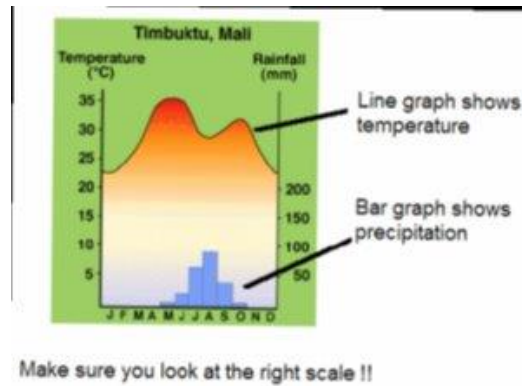
Stage 2 - As the air rises it cools and water vapour condenses to form clouds.

Stage 3 -When the condensation point is reached large cumulonimbus clouds are formed.

Stage 4 - Heavy rainstorms occur. These usually include thunder and lightning due to the electrical charge created by unstable conditions.



Climate of a place is shown on something called a climate graph. Climate graphs are a method of displaying climate data, usually temperature and precipitation. A climate graph is actually two graphs in one. There is a bar graph that shows precipitation and a line graph that shows temperature. This means that there are three axes.



The rainforest has a very different climate to us. In the rainforest the temperature doesn't change much throughout the year and rainfall changes slightly each month. Whereas, Edinburgh has much variation in temperature and rainfall by month.

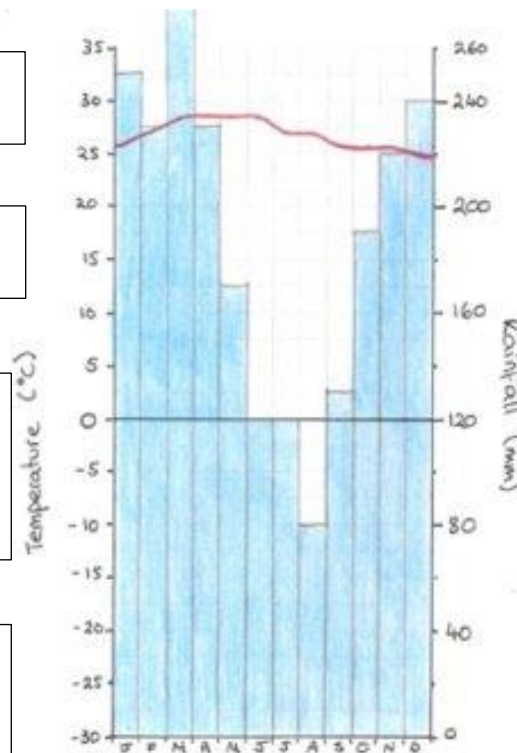
Rainforest climate

Maximum temperature
- 28°C

Minimum temperature
- 25°C

Range of temperature
(difference between
highest and lowest) –
28-25 = 3°C

Little variation in
temperature
throughout the year



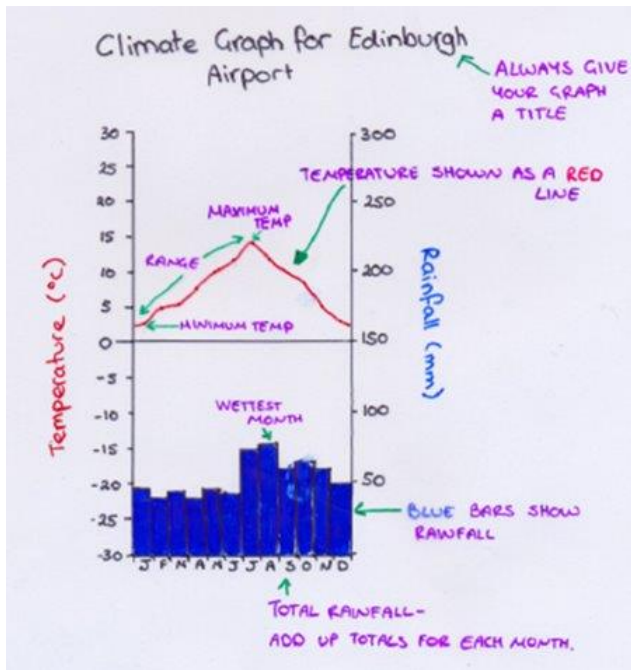
Wettest month – March
at 280mm

Driest month – August
at 80mm

Total rainfall = 2160mm

A lot of rain falls every
month

Edinburgh Climate



- The **maximum** temperature is 14°Celsius
- The **minimum** temperature is 3°Celsius
- The **range** of temperature (max temp-min temp) 11°Celsius.
- The **driest** month is April with 45 mm of rain.
- The **wettest** month is August with 65 mm of rain.
- The **total** rainfall is 625 mm.

TASK 4:

You are going to compare the climate of the Equatorial rainforest and Edinburgh's climate.

Your paragraph must discuss the following information:

- Maximum temperatures
- Minimum temperatures
- Temperature range
- Driest month(s)
- Wettest month(s)
- Total rainfall
- Any patterns or trends

Living in the Rainforest

It is not just plants and animals that live in this breath-taking environment; people have lived in rainforests for thousands of years. Some people live in villages and towns on the edge of wooded areas, where major rivers create transport routes for industries like logging, while others live deep in the rainforest.

Indigenous or native people that live in the rainforest typically live as their ancestors have done for many years before them. These people depend on the rainforest for shelter, food and medicine and have learnt how to use the rainforest to fulfil their needs without harming it.

There are lots of different indigenous tribes living in rainforests around the world; one of the largest is the Yanomami. The Yanomami live in South America in the rainforests and mountains of North Brazil and southern Venezuela. With a population of around 20,000 people the Yanomami live in large communal houses called shabonos. These shelters can accommodate between 50 and 400 people and are oval in shape with a central open area. They are rebuilt every year or so as they are fragile and easily damaged by storms.

Like most tribes in the Amazon daily tasks are divided up between the men and the women. Men go out each day and hunt for animals such as pumas and sloths. Women look after their families and grow their own crops. They also go out and gather food such as nuts, fruit and insects, as well as fish. The women weave baskets using bark and roots, which they use to carry crops and other food back to the shabonos. Yanomami children are expected to help their parents with household chores from a very early age. The Yanomami move every three to four years to find more fertile ground for their crops.

Other well-known rainforest tribes include the Pygmies in Central Africa, the Huli in Papua New Guinea, the Matis and Kamayura tribes also in Brazil.

There are some tribes deep in the Amazon Basin that are extremely isolated. It is believed that in the region of Vale de Javari there are 14 tribes, made up of about 2,000 people, that don't have any contact with the modern world outside the rainforest. The Brazilian government follows a policy of not contacting these people but does monitor their land, using planes and satellite technology, to ensure it is not under threat of clearance.

The people of the Rainforest want to protect it and use it **sustainably** as they rely upon it for their way of life. Shifting cultivation is a traditional and sustainable form of agriculture (farming). However, it is under threat from large-scale clearance of the rainforest

Process of shifting cultivation:

- Rainforest has dense vegetation
- Small areas are cleared and the vegetation burnt
- The burning of the plants adds nutrients to the soil (helps crops to grow)
- The soil remains fertile for a few years
- Farmers then move on to another area
- The forest regrows naturally

TASK 5:

What do you already know about people living in the Rainforest?

Copy/complete the spider diagram with information about the people who live in the Rainforest. Use your own knowledge, the information in this booklet, your own research and/or by watching this documentary (



TASK 6:

Imagine you live in the rainforest. Write a diary entry about your adventures in the rainforest and about **THE WAY PEOPLE LIVE THERE.**

Include facts about housing, clothes, food, farming and hunting. It must be **at least 1 page long.**

Dear Diary,

Deforestation

Deforestation is the chopping down of the forest to make way for something else. After the trees are cut down they are not replaced. This is leading to rainforest being destroyed forever. Around 80 000 acres of the rainforest are cut down every day! The indigenous tribes are at risk of losing their homes, food, medicine and way of life.

Here are some thoughts from people who live in the rainforest:

- “We want nothing from the white man. He has brought us only death, illness and murder. He has stolen and destroyed our forest. We want to be left alone. We want to stay here it is our right”
- “Some of the plants we use to make medicines have disappeared”
- “Thousands of the animals that live in our rainforest have been killed”
- “Waste and chemicals have poisoned our rivers”

Why is the rainforest being cut down?

- The logging industry (using the wood from the trees)
- Cattle ranching (raising cows for meat)
- Building roads to make access in the area easier
- Open cast mining (opening large areas to extract minerals)
- Oil pipelines (extracting oil from under the ground and using pipes to transport it)

This means:

- A loss of natural resources
- A loss of animal habitats
- A loss of plants and animal species
- A loss of settlements
- A loss of a traditional way of life
- Increased global warming

TASK 7:

Using all the words in the box below, write a paragraph explaining why deforestation takes place.

MINES	OIL PIPELINES	ROADS	LOGGING COMPANIES
CATTLE RANCHES		McDONALDS	NATURAL RESOURCES
DEVELOPMENT			

Some sentence starters:

The rainforest...

There are...

The land is...

The rainforest tribes have a very different opinion on deforestation compared to big businesses/companies.

On the next page you are going to read through 8 different opinions on deforestation.

You are then going to use this information for another task.

SCIENTISTS

Scientists have been studying the rainforests for decades. Today scientists from a number of countries are researching ecosystems and cures for diseases. Many projects are proving useful to humanity. Research into plant life has provided us with many medicines such as

LOGGERS

The world needs wood, people couldn't live without it. It is essential in everyday life used in so many things from furniture to hardwoods for industry. Even if the world did stop using wood and all rainforest products, it wouldn't put a stop to the deforestation. Tribal people and commercial farmers would still clear the land for farming. ranchers would still clear the land

GREENPEACE

We are destroying the world's precious ancient forests at an unprecedented rate. An area of natural forest the size of a soccer pitch is cut down every two seconds. Greenpeace believes that individuals and companies have the right and responsibility to buy wood, which do not contribute to environmental and social degradation.

MINING COMPANIES

Many minerals have been found in the rainforests and many areas still have to be explored. We believe that valuable resources will be found and that we should be allowed to mine them. We should be more careful with the environment and make as little damage as possible, but that would cost us too much money.

HEP

An unlimited supply of water and ideal river conditions have led to the development of hydro electric power stations (HEP Stations). The Brazilian government plans to build 31 dams in the Amazon region by 2010, stretching over 1,200 miles. Brazil needs to develop its industries and who are we to stand in the way of progress? Who cares about a few trees?

WWF

After decades of **conservation**, why is the Amazon still under threat? Surely, millions of dollars of conservation efforts should have put an end to rainforest destruction and wildlife loss in the Amazon? The factors that are bringing millions of people into the forests and the market pressures that create huge demands for cattle, soybean and timber are constantly increasing. To save the Amazon, some people still pay with their lives.

ENVIRONMENTALIST

The Amazon Rainforest is one of the last wildernesses on earth. Human activity in the Amazon Rainforest should be banned, or at the least carefully managed. Companies do not need to exploit this area for timber, gold and HEP. The rainforests are fragile – spoil them now and they will be lost forever.

POLITICIANS IN DEVELOPING COUNTRIES

The developed countries want to exploit the resources of the rainforests to keep their superiority over the rest of the world. What right do they have to ravage the last area of true wilderness? If the resources are to be used, they should benefit the whole world. The use of these resources should be carefully managed to prevent the destruction of the rainforests.

TASK 8:

You need to decide which point of view you agree with most from the 8 above.

You are going to create a campaign using the point of view.

You must either:

- Produce a detailed poster highlighting your case, **OR**
- Write a speech to present to the rest of the class

Sustainable Development

This type of development looks after the needs of people today but does not damage the future availability of the same natural resources.

BUT what does this mean?

Types of sustainable development:

- **Agro-forestry** - growing trees and crops at the same time. This lets farmers take advantage of shelter from the canopy of trees. It prevents soil erosion and the crops benefit from the nutrients from the dead organic matter.
- **Selective logging** - trees are only felled when they reach a particular height. This allows young trees a guaranteed life span and the forest will regain full maturity after around 30-50 years.
- **Education** - ensuring those involved in exploitation and management of the forest understand the consequences behind their actions.
- **Afforestation** - the opposite of deforestation. If trees are cut down, they are replaced to maintain the canopy.
- **Forest reserves** - areas protected from exploitation.
- **Monitoring** - use of satellite technology and photography to check that any activities taking place are legal and follow guidelines for sustainability.

TASK 9:

Your task is to write a detailed report on the causes and effects of deforestation and how we can reduce these effects (sustainable development).

Success criteria:

- At least 3 causes of deforestation
- At least 2 effects of deforestation
- An overview of the different methods of sustainable development
- Include relevant pictures/drawings

Task 9 Report

**space for poster or speech (task 8)*