

## KS3 Geography Resource Pack - Presentation Information

### This information is designed to support the class presentation

#### Slide 1: Title Page

- Have this on display when the pupils enter the classroom.

#### Slide 2: In this lesson you will learn:

- Read through each point - no additional comments needed.

#### Slide 3: We will then focus on:

- Read through each point - no additional comments needed.

#### Slide 4: What are tropical rainforests:

- Biomes are large regions of the world with similar plants, animals, and other living things that are adapted to the climate and other conditions.
- They are NOT ecosystems - you can have more than one ecosystem in a biome.
- Steady climate - equatorial so constant temperature (around 27°C), days and nights are the same length. This is why trees are evergreen - there are no seasons like we see in the UK.
- Steady climate - hot & wet all year round because of equatorial location - sun always high in the sky - causes uprising of warm air, low pressure and daily rainfall.
- High rainfall - some rainforests have up to 2400mm annual rainfall.

#### Slide 5: Where are tropical rainforests located:

- Around the equator: between the tropics of Cancer and Capricorn but mainly found within 10° north and south of the Equator.
- This slide will highlight the Equator, then the tropic of Cancer, then the tropic of Capricorn.
- Ask students which countries they think the main 3 rainforest areas are and point out on graph (next slide).

#### Slide 6: Tropical Rainforests of the World:

- The green areas demonstrate rainforest cover and NOT countries.
- The slide will highlight the tropics, then Brazil, Zaire and Indonesia. The largest rainforests are in Brazil.

#### Slide 7: Main characteristics:

- Read through each point - no additional comments needed.

#### Slide 8: Rainfall:

- Other half made by the forest itself - ask the class how? *Through evapotranspiration* (next slide).

#### Slide 9: Evapotranspiration:

- Evapotranspiration = evaporation + transpiration.
- Aerial photo of the Amazon rainforest. Shows "popcorn" clouds in the afternoon. Highlight that there are no clouds over the river, its flood basin or the Atlantic Ocean. This suggests the clouds could have formed through transpiration from trees, as there are only clouds where there are trees.

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#### Slide 10: Temperature & humidity:

- Humidity due to daily rainfall - always moisture in the air.

#### Slide 11: Soil

- Irreplaceable - forest cannot recover after deforestation. No trees = no nutrients.

#### Slide 12: Trees - forest structure:

- Explain that there are 4 main layers in a rainforest. Ask the students if they can name any.
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#### Slide 13: Trees - emergent layer:

- Emergent trees can reach 60-70m.
- Emergents often take advantage of tree fall which allows sunlight through the forest layers & use this extra energy to grow so tall.

#### Slide 14: Trees - buttress roots:

- Read through each point - no additional comments needed

#### Slide 15: Trees - canopy layer:

- Epiphytes - plants that grow off other plants. Photos follow on next slide. Many animal species born and die in canopy - never touch forest floor.

#### Slide 16: Trees - epiphytes:

- Read through each point - no additional comments needed.

#### Slide 17: Trees - under storey layer:

- Less sunlight - so trees grow bigger leaves to catch all available sunlight

#### Slide 18: Trees - forest floor:

- Many insects aid in breaking down the leaf litter.

#### Slide 19: Trees - lianas:

- Animals move freely - this is one reason why some animals live in the canopy all their life.

#### Slide 20: What is the biggest rainforest?:

- Amazon river runs through the rainforest. World's biggest river. (Bigger volume of water than the next 10 largest rivers in the world combined).

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#### Slide 21: Why are rainforests important?:

- Took millions of years to evolve to how they are today - once they are lost, they are gone forever.
- Also known as a "Carbon Sink" - in addition to absorbing CO<sub>2</sub>, the trees accumulate & store a lot of carbon over time. ANCIENT FORESTS - large carbon store!

#### Slide 22: Why are rainforests threatened?:

- Read through each point - no additional comments needed.

#### Slide 23: Deforestation:

- Read through each point - no additional comments needed.

#### Slide 24: Causes of deforestation:

- Cattle farming is also known as cattle ranching

#### Slide 25: Deforestation - cattle farming:

- In the 1980s there was a Burger King boycott - people refused to eat there until they stopped using rainforest beef. This took over a year to happen.

#### Slide 26: Deforestation - large scale agriculture:

- Read through each point - no additional comments needed.

#### Slide 27: Deforestation - small scale agriculture:

- Clearance can be "slash & burn" technique, where an area of trees are cut, allowed to dry then burnt.
- Shifting cultivation practices are less destructive than slash & burn.

#### Slide 28: Deforestation - logging:

- Paper - for printing, packaging (again, fast food chains are culprits!), cardboard, books, sandwich cartons etc!

#### Slide 29: Deforestation - mining:

- Chemicals e.g. gold and cyanide.
- Guyana 1995 - just north of Brazil. 4 billion litres went into 80km section of Essequibo river. Impacted wild-life, drinking water and ecotourism.
- Mine waste is dumped into the Aikwa river (130 km<sup>2</sup> affected) and contaminates rainforest at lower altitude.

#### Slide 30: Deforestation - infrastructure:

- Much wider roads are now needed to accommodate large vehicles that transport goods.

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#### Slide 31: Impacts of deforestation:

- Leaching - loss of nutrients when it rains. No vegetation left to stop surface run-off.
- Once beautiful landscapes can resemble deserts - once nutrients are gone nothing can grow.
- Carbon sink - as explained in slide 21, trees store a lot of carbon so large amounts of deforestation can release a lot of carbon into the atmosphere. Approximately 30% of CO<sub>2</sub> released into the atmosphere comes from burning rainforests.

#### Slide 32: Loss of habitat:

- Cutting habitat into pieces - known as fragmentation. Animals may then be trapped in one area and are no longer free to roam the whole forest. Causes isolation.
- Habitat not only home for animals - home to people too. And an important food source.

#### Slide 33: Loss of animal species:

- Bushmeat is the meat of terrestrial wild animals. Subsistence & commercial purposes.

#### Slide 34: Loss of species - poaching:

- Ivory - another example is rhino horn - selling just ONE will give a poacher enough money to live off for life.

#### Slide 35: Does anyone treat the rainforest with respect:

- Well-known tribes include the Pygmies in Central Africa and the Huli in Papua New Guinea.

#### Slide 36: Does anyone treat the rainforest with respect:

- Ecotourism (ecological tourism) is the is responsible travel to fragile, pristine, and usually protected areas that strives to be low impact and (often) small scale.
- Raises awareness of the consequences of our actions (if people see the rainforest themselves they are more likely to be concerned about habitat loss).

#### Slide 37: Will things EVER change?:

- Management e.g. logging at a rate that maintains biodiversity, productivity and regeneration capacity.
- Should not impact upon, and should maintain relevant ecological, economic and social functions at local. National and global levels, without causing damage to other ecosystems.

#### Slide 38: What about the animals?:

- Read through each point - no additional comments needed

#### Slide 39: How are endangered species classified?:

- Read through each point - no additional comments needed

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#### Slide 40: IUCN Red List:

- Population size - if it is decreasing or small there is cause for concern
- Geographic range - also includes fragmented habitats.

#### Slide 41: Some endangered rainforest species:

- CR is the most important for conservation. LC is the least important. DD means there is not enough information on the species to put it into one of the other categories.

#### Slide 42: Animals on the edge:

- Read through each point - no additional comments needed

#### Slide 43: What is EDGE:

- Disproportionate amount of evolutionary history - the species is unique in some way and if it dies out there will be nothing like it left in the world.

#### Slide 44: EDGE scores - explaining ED:

- The length of the individual branch of species A is much longer. This represents the unique evolutionary history for that species.

#### Slide 45: EDGE scores - explaining GE:

- Relates to the slide with the Red List categories.

#### Slide 46: EDGE scores - ED + GE:

- Species that are most evolutionarily distinct AND globally endangered need conservation the most
- There is not enough funding in science to conserve all species, which is why scientists have developed methods of choosing which ones to save first.

#### Slide 47: Some rainforest EDGE species:

- Can all be found on the EDGE website [www.edgeofexistence.org](http://www.edgeofexistence.org). The salamander is listed under amphibians, the rest are listed under mammals.

#### Slide 48: What can be done to protect these species:

- Captive breeding programmes are especially important if a species' habitat is severely threatened or its population is very small. There are species that are now extinct in the wild and only exist in zoos.

#### Slide 49: How does the EDGE team help:

- Read through each point - no additional comments needed

#### Slide 50: EDGE Fellows:

- Read through each point - no additional comments needed