

# YEAR 10 GEOGRAPHY – CYCLE 1 – TROPICAL RAINFORESTS

BOX 1: KEYWORDS	
sustainability	meeting the needs of today → without harming the planet for future
biodiversity	high biodiversity is lots of species, low biodiversity is few species
deforestation	chopping down and removal of trees to clear an area of forest
interdependence	when the components of an ecosystem rely on each other to survive
value	importance/usefulness → does not always mean the price
tropical hardwoods	large valuable trees → very strong wood → e.g. mahogany and teak
debt	when money has been borrowed and is owed to be paid back

BOX 2: TROPICAL RAINFOREST GLOBAL ECOSYSTEM → CHARACTERISTICS	
distribution	tropical rainforests are distributed along the Equator
case study	The Amazon Rainforest, Brazil (South America)
climate	<ul style="list-style-type: none"> <li>high temperature → (concentrated insolation at Equator) e.g. more than 25° C</li> <li>high precipitation → (heat causes evaporation and condensation) e.g. more than 2000 mm of rain annually (yearly)</li> </ul>
biodiversity	<ul style="list-style-type: none"> <li>tropical rainforests cover only 7% of Earth's surface but are home to over 50% of the world's animal and plant species</li> <li>high temperatures + high precipitation → helps variety of producers grow → provides food for variety of consumers → leads to lots of species variety → high biodiversity in tropical rainforests</li> </ul>
soil	<ul style="list-style-type: none"> <li>surprisingly → soil is not very fertile → rain washes away nutrients</li> <li>very fast nutrient cycle → nutrients in soil replenished from plants decaying quickly in humid (hot and wet) conditions</li> </ul>
interdependence → components rely on each other	<ul style="list-style-type: none"> <li>humid climate → helps producers to grow → helps to provide food and shelter for consumers and people → animals help pollinate plants → trees help evapotranspiration → humid climate</li> </ul>

BOX 3: PLANT ADAPTATIONS		
	adaptation	This helps the plant to survive because...
emergent trees	thick buttress roots	supports tall trees → stops tree falling
	drip tip leaves	rain can drip off leaf → no damage/rotting
epiphytes	grow on other plants	absorb nutrients and water from moist air

BOX 4: ANIMAL ADAPTATIONS		
	adaptation	This helps the animal to survive because...
poison dart frogs	toxic skin	poisons predators
	bright coloured skin	warns off predators
glasswing butterflies	transparent wings	camouflage from predators

BOX 5: CHANGING RATES OF DEFORESTATION	
deforestation rates	<ul style="list-style-type: none"> <li>over 50% of tropical rainforests have been deforested in 100 years</li> <li>increasing rate of deforestation → Bolivia</li> <li>decreasing rate of deforestation → Brazil (but fluctuating ☹️)</li> </ul>

BOX 6: CAUSES OF DEFORESTATION → CASE STUDY AMAZON RAINFOREST	
1. subsistence farming	trees cut down to create space for small family farms → farming only to provide food and materials for the farmer's family or tribe
2. commercial farming	trees cut down to create space for large farms → farming to sell produce for a profit → e.g. 80% of deforestation in Brazil from cattle farming
3. logging	valuable hardwoods e.g. mahogany or teak are cut down and sold
4. road building	trees cut down for roads → Trans-Amazonian Highway is 4000 km long
5. mineral extraction	trees cut down so valuable minerals can be removed from ground → 50,000 hectares used for gold mining in the Amazon → releases toxic chemicals e.g. mercury into rivers → poisons fish and people
6. energy development	dams built over rivers in the Amazon Rainforest → generate hydroelectric power → forest upstream of dam is flooded → trees rot
7. settlement	people working in the Amazon Rainforest need homes → large areas of forest cut down to create space to build homes for the workers
8. population growth	population increases → more space is needed for homes → trees cut down to create space for homes → also more resources required

BOX 7: IMPACTS OF DEFORESTATION → CASE STUDY AMAZON RAINFOREST	
1. economic development	cattle farming, exporting mahogany, mining gold → boosts economy and provides employment → increases GNI → increases development
2. soil erosion	trees removed → bare soil vulnerable to erosion by heavy precipitation → washes away nutrients → crops struggle to grow → farms abandoned
3. climate change	<ul style="list-style-type: none"> <li>fewer trees to absorb carbon dioxide → climate change worsens</li> <li>trees burned → releases carbon dioxide → climate change worsens</li> </ul>

BOX 8: VALUE OF TROPICAL RAINFORESTS TO PEOPLE AND ENVIRONMENT	
carbon sink	Amazon Rainforest absorbs > 1 billion tonnes of carbon dioxide yearly
medicines	many medicines and cures for diseases found in rainforest plants <ul style="list-style-type: none"> <li>25% of ingredients in cancer drugs found only in rainforest</li> <li>&lt; 1% of rainforest plants have been tested by scientists</li> <li>&gt; 137 rainforest species go extinct every day due to deforestation</li> </ul>
tribes	Amazon is home to over 200 indigenous tribes → rely on the ecosystem

BOX 9: STRATEGIES USED TO MANAGE THE AMAZON RAINFOREST SUSTAINABLY	
1. selective logging	only cut down mature trees → encourages growth of young trees
2. replanting	trees planted in areas of deforestation → use rainforest seeds mixture
3. conservation and education	NGOs e.g. the World Wildlife Fund → promote conservation message in schools, train conservation workers and purchase threatened areas
4. ecotourism	small groups pay to visit rainforest → locals encouraged to protect area
5. international agreements	International Tropical Timber Agreement → legally felled trees are marked with a unique code → discourages trade in illegally felled trees
6. debt reduction	'debt-for-nature-swaps' → some debts cancelled if country promises to protect rainforest e.g. USA cancelled \$21 million Brazilian debt (2010)

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