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	• **high temperature** → (concentrated insolation at Equator) e.g. more than **25° C** • **high precipitation** → (heat causes evaporation and condensation) e.g. more than **2000 mm** of rain annually (yearly)
biodiversity	• tropical rainforests cover only **7%** of **Earth's surface** but are home to over **50%** of the **world's animal** and **plant species** • **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
soil	• **surprisingly** → **soil** is **not very fertile** → **rain washes away nutrients** • very **fast nutrient cycle** → **nutrients** in soil **replenished** from plants **decaying quickly** in **humid** (hot and wet) conditions
interdependence → components rely on each other	• 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

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	• over **50%** of **tropical rainforests** have been **deforested** in **100 years** • **increasing rate** of deforestation → **Bolivia** • **decreasing rate** of deforestation → **Brazil** (but fluctuating ☹)

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	• **fewer trees to absorb carbon dioxide** → climate change worsens • **trees burned** → **releases carbon dioxide** → climate change worsens

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** • **25%** of **ingredients** in **cancer drugs** found **only** in **rainforest** • **< 1%** of **rainforest plants** have been **tested** by **scientists** • **> 137** rainforest **species** go **extinct** every **day** due to **deforestation**
tribes	**Amazon** is **home** to **over 200 indigenous tribes** → **rely on** the **ecosystem**

BOX 9: STRATAGIES 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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