Year 10 Geography Autumn 1 – Paper 1 Section A Natural Hazards

Geography homework will be set every week on Seneca.

Key Word	Meaning
Abiotic	Non-living components of an ecosystem.
Adaptation	Adjustments to organisms to improve their chance of survival in a particular environment.
Agriculture	Farming
Air pressure	The force from the weight of the air above us.
Algal bloom	The overgrowth of algae, often caused by eutrophication.
Appropriate technology	Using cheap, sustainable and available materials appropriate to local low-income communities.
Arid	Very dry and without enough rain for plants.
Biodiversity	The number of different species living in an ecosystem.
Biomass	Living organic material
Biotic	Living components of an ecosystem.
Buttress roots	Large, wide roots at the base of a tree.
Canal	A man-made waterway used to transport boats or water for irrigation.
Carbon sink	A natural environment that absorbs carbon dioxide from the atmosphere, e.g. a forest or ocean.
Climate graph	A graph showing monthly precipitation using bars and monthly average temperature using a line graph.
Commercial farming	Large-scale farming for profit.
Consumer	An organism that gets its food from eating another organism.
Crop yield	The amount of plant the farmer harvests.
Debt reduction	Cancelling part of a country's debt in exchange for protecting the tropical rainforest.
Decomposer	Organism that breaks down organic material, returning nutrients to the soil.
Deforestation	The widespread clearance of forested land.
Desertification	The gradual change of fertile land into desert.
Development	The progress a country has made in terms of economic growth, use of technology and human welfare.
Drip irrigation	Where water drips slowly onto the ground from pin-sizer holes in a hose lying on top of the soil.

Drip-tip leaves	Leaves with a pointed end which allows water to quickly shed.
Drought	Prolonged below-normal precipitation.
Ecosystem	A natural system made up of biotic and abiotic components.
Ecotourism	Sustainable small-scale tourism, focused on conservation.
Emergent layer	The tallest layer in the tropical rainforest, approx. 40 metres.
Equator	An invisible horizontal line running around the middle of the Earth at 0°N/S.
Eutrophication	The overnutrition of a body of water, leading to increased plant and algal growth.
Fertiliser	Chemicals used by farmers to increase crop yield.
Food chain	A diagram to show the direct links between producer and consumers.
Food web	A diagram to show all the interrelationships between producers and consumers in an ecosystem.
Global ecosystem	Large-scale ecosystems with a shared dominant type of vegetation, and similar climates. They are sometimes called biomes.
Humid	Hot and wet
Indigenous people	A group of people native to the region, who lived there before more recent settlers.
Interdependence	How different parts of an ecosystem are interconnected or are affected by each other.
Kaolin	A white mineral used for whitening paper.
Latitude	Distance from the equator.
Leaching	When nutrients in the soil is washed away.
Lianas	Vines in the tropical rainforest that grow across trees.
Litter	Dead organic material
Nocturnal	Animals which are active at night.
Nomadic	Moving from one place to another, rather than living in the same place.
Nutrient cycling	How nutrients transfer between stores in an ecosystem.
Oasis	A small fertile or green area in a desert, usually having a spring.
Over-cultivation	Farming too many crops so that the soil is degraded.
Overgrazing	Grazing too many livestock so that vegetation cannot recover.
Precipitation	Any moisture falling to the ground (e.g. rain, snow, sleet, hail...)
Predator	An animal that eats another animal.
Producer	An organism that makes its own food in an ecosystem, usually through photosynthesis.

Selective logging	The removal of only certain trees (usually older trees) - most trees ae left standing.
Soil erosion	The wearing away and removal of soil by wind or water.
Stone lines	Small stone walls along a slope to retain water uphill.
Subsistence farming	Small-scale farming to provide for you and your family.
Surface runoff	The flow of water across the surface of the land, into bodies of water.
Tap roots	A large, long root to reach water deep underground.

Paper 1	Section B – Living World	Small-Scale UK Ecosystem – Freshwater Pond

Organisms

Producers – organisms that produce their own food, usually through photosynthesis, e.g. **pondweed**, **algae**
Primary consumers – organisms that eat producers, e.g. **caddis fly**
Secondary consumers – organisms that eat primary consumers, e.g. **minnow fish**
Tertiary consumers – organisms that eat secondary consumers, e.g. **kingfisher**, **heron**

Factors

Biotic Factors – living things	Abiotic Factors – non-living things
Animals	Soil
Plants	Sunlight
Bacteria	Water
Fungi	Rocks

Inter-relationships

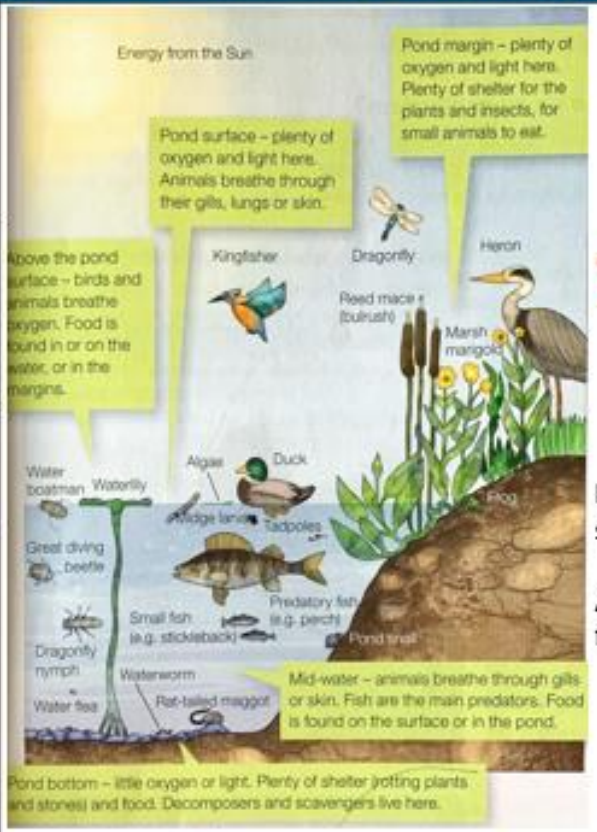
- Pond surface allows fish to prey on insects
- Pond margin has shelter for small animals to eat
- Decomposers live on the pond bottom

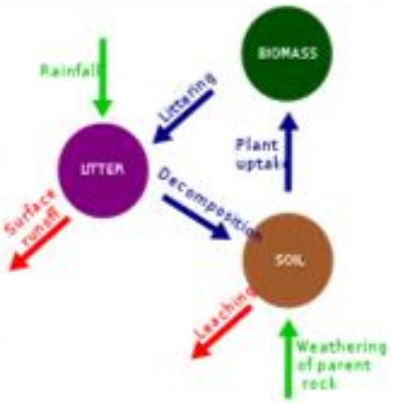
Balance between components

Drought = prolonged below-normal precipitation
- Drought dries up pond
- Insect larvae die
- Fish and prof populations decrease
- Kingfisher population decreases

Introducing Predators, e.g. pike added to pond for fishing
- Pike will eat smaller minnow fish and frogs
- Kingfishers will decrease as food supply is reduced
- Increase in organisms such as algae, as fewer frogs to eat it
- Ecosystem becomes unbalanced

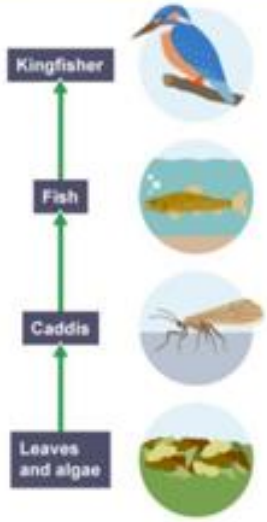
Fertiliser Use – chemicals used by farmers to increase crop growth
- Nutrient-rich runoff from farm enters pond
- Increased algae growth (eutrophication) limits light entering pond
- Pondweed cannot photosynthesise so start to die
- Ecosystem loses its producer so organism die
- Fish suffocate due to lack of oxygen in water





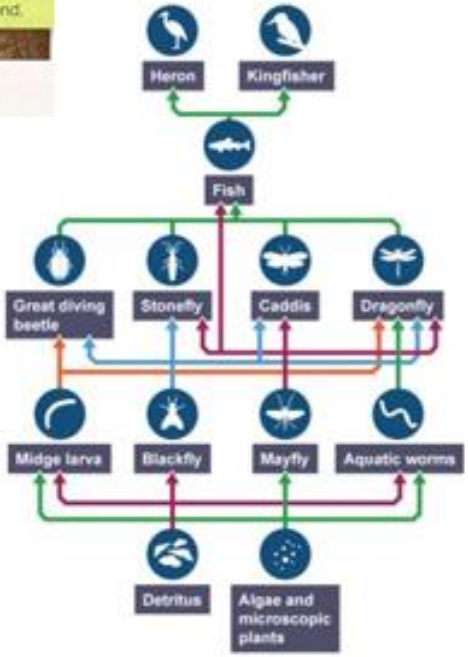
Left: inter-relationships and species in a freshwater pond.

Above: nutrient cycle in a freshwater pond.



Left: food chain from a freshwater pond.

Right: food web from a freshwater pond.



Paper 1	Section B – Living World	Tropical Rainforest – Amazon Rainforest

Causes of Deforestation	
Subsistence farming	• 25% of deforestation. • Farming for you and your family's needs. • Many Indigenous people are subsistence farmers.
Commercial farming	• Biggest cause of deforestation. • Large-scale farming for profit. • Land is cleared (usually burned) for cattle ranching, soybean or sugarcane crops. • Example: São Félix do Xingu ranch raises 2.3 million cattle.
Logging	• 3% of deforestation • Chopping down trees for wood. • The Amazon is full of valuable hardwoods, such as mahogany.
Road building	• Roads are built to transport farmed goods and logs. • Example: Trans-Amazonian Highway is 4,000km long.
Mineral extraction	• Gold, iron ore and copper are mined and exported. • Example: the Carajas gold mine
Energy development	• Building hydroelectric dams floods large areas of forest. • Example: the construction of the Balbina Dam (near Manaus, Brazil) flooded 2,400km2 of forest.
Settlements + Population Growth	• Between 1980 and 2000, Amazon's urban population tripled. • The Brazilian government have been relocating people from poor cities into the Amazon.

Impacts of Deforestation	
Economic Development	• Provides jobs in mining, farming, energy and logging, so people can support themselves, improving their standard of living and quality of life. • Companies pay taxes to the government which can be used to improve public services, such as education and healthcare. • 8% of Brazil's GDP comes from the Amazon. • Improved infrastructure (roads, internet) supports further industrial development and tourism. • Hydro-electric power is cheaper than alternatives.
Soil Erosion	• Tree roots bind the soil together, protecting it from heavy rainfall. • Without trees, the soil is washed away. • Nutrients is also washed away (leaching), causing the soil to become infertile – bad for farming and new trees.
Climate Change	<u>Global Climate Change</u> • Trees are a carbon sink and absorb carbon dioxide. • Without trees, more carbon dioxide is trapped in our atmosphere, making it hotter and hotter, enhancing the greenhouse effect. • Brazil's CO2 emissions increased by 9.5% in 2020 due to deforestation. <u>Local Climate Change</u> • TRFs generate 75% of their own rain through evapotranspiration. • Removing the trees leads to a drier and hotter climate. • Increased risk of drought and forest fires. • Summer temperatures in the Amazon have increased by 3.2°C since 1980.

Left: Commercial farming in the Amazon.

Below: Trans-Amazonian Highway

Paper 1	Section B – Living World	Hot Deserts – Thar Desert

Development Opportunities	
Tourism	• 10,000s visit the Thar Desert each year, mainly from Pakistan and India. • Desert safaris on camels are popular. • Annual Desert Festival is held each winter, allowing locals to sell their crafts.
Mineral Extraction (mining)	• Kaolin (used to whiten paper) • Gypsum (used to make plaster for construction) – Thar Desert supplies nearly all of India's gypsum • Samu Limestone (used in the steel industry) – from Jaisalmer
Energy	• Jaisalmer Wind Park built in 2001 – India's largest wind farm. • Bhadla Solar Farm – will provide enough energy for Rajasthan. • Large oilfield in Barmer district.
Farming	• Most people are involved in small-scale subsistence farming, cultivating fruit trees and grazing animals. • Commercial farming has grown due to the Indira Gandhi Canal which provides water for irrigating crops.

Challenges of Development	
Extreme Temperatures	• Health challenges for people working outside – miners, farmers, construction workers. • Tourism is limited to the cooler months. • Dehydration of farm animals affects farming.
Water Supply	• Very little water for farming crops. • Very little water for industry – factories use a lot of water. • Increasing population are demanding more water.
Inaccessibility	• Roads often melt in heat. • Strong winds blow sand over roads. • Very little public transport. • Many places are only accessible by camel.

Left: Jaisalmer Wind Park

Right: annual Desert Festival

Left: Indira Gandhi Canal

Right: travelling in the Thar Desert by camel