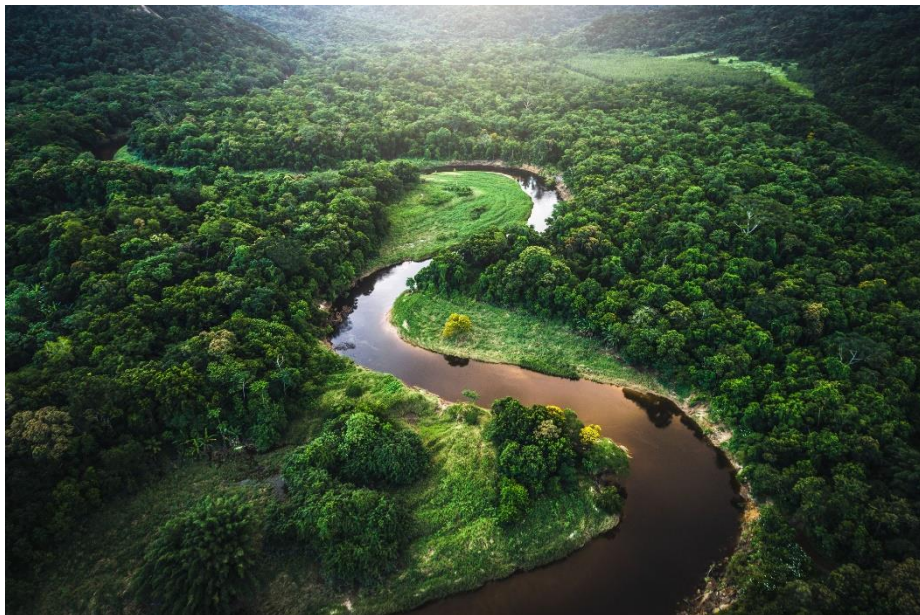


Name: _____

Geography

Homework Booklet



Year 10

Term 5: Ecosystems

Homework 1	Learn keywords	Due date:	Completed? Yes/No
Homework 2	Guided Reading Activity	Due date:	Completed? Yes/No
Homework 3	Prepare for knowledge test	Due date:	Completed? Yes/No

Geography Homework Tasks Term 2

Homework 1 - Learn the keywords below for a mini test at the start of next lesson.
You could read through the words, write them out, create a match up activity or get someone to test you.

Keyword	Definition
Ecosystem	A community of plants and animals and the environment in which they live.
Biome	Very large ecosystems e.g. tropical rainforest.
Producers	Green plants - they make food by photosynthesis.
Primary consumers	Usually eat plant material - they are herbivores. For example rabbits, caterpillars, cows and sheep.
Secondary consumers	Usually eat animal material - they are carnivores. For example cats and dogs.
Tertiary consumers	Animals that kill for food, they are carnivorous and are at the top of the food chain.
Detrivores	An animal which feeds on dead organic material, especially plant detritus.
Serengeti	The Serengeti ecosystem is a geographical region in Africa, spanning the Mara and Arusha Regions of Tanzania. The protected area within the region includes approximately 30,000 km ² of land, including the Serengeti National Park and several game reserves.
Sustainable management	Sustainable management means ensuring that it is a sustained in a way for future generations to use. Sustainable management also involves making sure local people are not disadvantaged, and ensuring that management is environmentally friendly.

Homework 2 – Complete the guided reading activity on the next page.
You may wish to write your answers out on paper, so you have more space.

Homework 3 - Learn the facts below, and in the knowledge organiser at the end of this booklet, for a knowledge test next lesson. You could highlight the key information, create revision cue cards or get somebody to test you.

5 What development requires a lot of deforestation along the river and why?

.....
.....
.....

6 What happened in 2016 making it easier to obtain a deforestation license?

.....
.....
.....

10 Explain why the Amazon is known as 'The Lungs of the Earth'.

.....
.....
.....

1 What happened to the rate of deforestation in 2019?

.....
.....
.....

2 What happened to the price of beef in 2019, and what did this lead to?

.....
.....
.....
.....

3 Why are there more soybean farmers?

.....
.....
.....
.....

4 Why do soy farmers use old cattle ranches to grow their crops?

.....
.....
.....
.....
.....
.....
.....
.....

DEFORESTATION IN THE AMAZON

Why should we be concerned?

The Amazon rainforest is rapidly decreasing. In 2019, the rate of deforestation was 29% higher than in previous years. This problem is getting worse.

There are multiple reasons why the rate of deforestation is on the rise. One of the biggest culprits is our expanding agricultural industry, as we struggle to feed the world's continuously growing population. Brazilian beef prices were at a high in 2019, and cattle ranchers cleared vast quantities of rainforest to raise their livestock and turn a profit. The shift towards health-conscious lifestyles is also taking its toll on the Amazon. Many people are now choosing dairy-free alternatives to milk, particularly soya milk. The rising demand for and value of soybeans encourages more farmers to clear areas of forest to plant soy for profit. In addition to this, many soy farmers are planting soybeans on savannas or old cattle ranches as these have easier access routes, forcing cattle ranchers deeper in to the forest where they clear new land. In our everyday lives, we are using more technology than ever.

Our demand for power to fuel our gadgets is at an all-time high. Pressure from scientists and climate activists has encouraged countries to consider cleaner, renewable sources of energy instead of fossil fuels. But hydroelectric dams along the rivers in the Amazon require a lot of

deforestation, both for the dam itself and the access routes and infrastructure.

Gold mines are expanding, requiring more quarries and deforestation, and an increase in residential developments has also seen vast areas of rainforest cleared. The process of logging itself still remains at large, and the 2016 changes to Brazil's Forest Code have made it easier to obtain a license for deforestation. This has attracted a surge of investment in the Amazon. Despite this, vast amounts of illegal logging are still commonplace.

So why should we be concerned? Deforestation and the various uses of the Amazon are very profitable. Prices of products such as timber, beef and soya beans would sky-rocket if we no longer farmed or logged in the Amazon. Many locals would lose a stable source of income, and would potentially turn to uncontrolled, illegal logging instead. Brazil and other South American countries have been able to develop since exploiting the rainforest, and thanks to profits, are now able to provide sound healthcare, education, affordable homes and a higher standard of living for their people.

Despite this, there are many who argue that the rainforest is far more valuable to us when left intact. The Amazon is home to unequalled biodiversity, supporting thousands of bird, animal, insect, plant and tree species. Many of these species

are unique and not found anywhere else on the planet.

The Amazon captures and stores vast amounts of our waste product - carbon dioxide - whilst replenishing the atmosphere with vast quantities of oxygen. This air purification is essential to life on Earth.

Worldwide, there are 3000 plants that have been found to be useful in treating cancer. 70% of them only grow in the rainforest. In fact, many of our medicines use ingredients found in the Amazon rainforest, including those used to treat headaches, insect bites and stings, eczema, malaria, infections and wounds. Apart from being known as 'The Lungs of The Planet,' the Amazon also receives the title of 'The World's Largest Medicine Cabinet.'

Perhaps the most surprising and yet saddening statement to take away from this article, is that we have only explored and studied just a minuscule region of the Amazon. Some scientists estimate that we have only truly discovered 1% of the rainforest. There are likely to be many more undiscovered species and potential cures yet to be found.

11 Why is the Amazon known as 'The World's Largest Medicine Cabinet'?

.....
.....
.....
.....
.....

12 Why are scientists keen to protect the Amazon?

.....
.....
.....
.....
.....

9 What do you think is meant by the term 'biodiversity'?

.....
.....
.....
.....
.....

7 Give reason why Brazilians may support deforestation.

.....
.....

8 Why do you think the prices of products such as soy would increase if soybean farming in the Amazon was banned?

.....
.....

What is an Ecosystem?

An ecosystem is a system in which organisms interact with each other and with their environment.

Ecosystem's Components

Abiotic These are non-living, such as air, water, heat, rock.

Biotic These are living, such as plants, insects, and animals.



Flora is plant life occurring in a particular region or time.

Fauna is all animal life of any particular region or time.



Food Chains & webs

Food chains are useful in explaining the basic principles behind ecosystems. They show only one species at a particular level from where energy is transferred up to the next via a trophic cascade. In reality, most work via food webs.

Nutrient cycle

Plants take in those nutrients where they are built into new organic matter. Nutrients are taken up when animals eat plants and then returned to the soil when animals die and the body is broken down by decomposers.

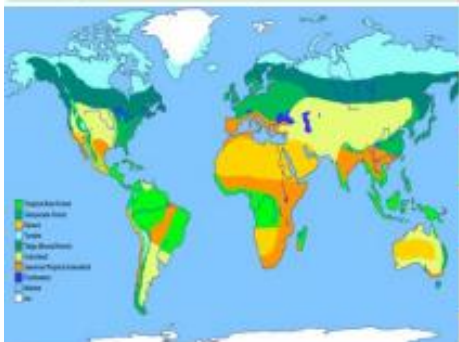
Litter This is the surface layer of vegetation, which over time breaks down to become humus.

Biomass The total mass of living organisms per unit area.



Biomes

A biome is a large geographical area of distinctive plant and animal groups, which are adapted to that particular environment. The climate and geography of a region determines what type of biome can exist in that region.



Coniferous forest
Deciduous forest
Tropical rainforests
Tundra
Temperate grasslands
Tropical grasslands
Hot deserts.

The most productive biomes – which have the greatest biomass- grow in climates that are hot and wet.

Tropical Rainforest Biome



Distribution of Tropical Rainforests

Tropical rainforests are centred along the Equator between the Tropic of Cancer and Capricorn. Rainforests can be found in South America, central Africa and South-East Asia. The Amazon is the world's largest rainforest and takes up the majority of northern South America, encompassing countries such as Brazil and Peru.



Convictional rainfall

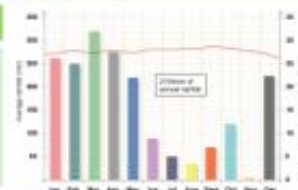
- 1 The roots of plants take up water from the ground and the rain is intercepted as it falls.
- 2 As the rainforest heats up, the water evaporates into the atmosphere.
- 3 Finally, the water condenses and forms clouds to make the next day's rain.

Rainforest nutrient cycle

The hot, damp conditions on the forest floor allow for the rapid decomposition of dead plant material. This provides plentiful nutrients that are easily absorbed by plant roots. However, as these nutrients are in high demand from the many fast-growing plants, they do not remain in the soil for long and stay close to the surface. If vegetation is removed, the soils quickly become infertile

Climate of Tropical Rainforests

- Evening temperatures rarely fall below 22°C
- Due to the presence of clouds, temperatures rarely rise above 32°C
- Most afternoons have heavy convectional rain
- At night with no clouds insulating temperature drops



Topic 4

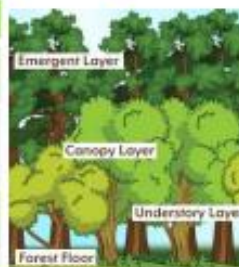
Sustaining Ecosystems

Interdependence in the rainforest

A rainforest works through interdependence. This is where the plants and animals depend on each other for survival.

Layers of the Rainforest

Emergents	Highest layer with tree reaching 50 metres.
Canopy	Most life is found here as it receives 70% of the sunlight and 80% of the light.
Under Canopy	Consists of trees that reach 20 metres high.
Shrub Layer & Forest Floor	Lowest layer with small trees that have adapted to living in the shade.



Rainforest soil profile - latosols



Leaf Litter	Thin litter layer rapidly decomposes in heat.
Top Soil	Shallow topsoil is a mixture of decomposed organic matter and minerals.. Normally red.
Sub Soil	The sub-soil is deep due to weathering of rocks below.
Rock	Underlying rock weathers quickly at high temperatures to form sub-soil.

Biome	Location	Temperature	Rainfall	Flora	Fauna
Tropical rainforest	Centred along the Equator.	Hot all year (25-30°C)	Very high (over 200mm/year)	Tall trees forming a canopy; wide variety of species.	Greatest range of different animal species. Most live in canopy layer
Tropical grasslands	Between latitudes 5°- 30° north & south of Equator.	Warm all year (20-30°C)	Wet + dry season (500-1500mm/year)	Grasslands with widely spaced trees.	Large hooved herbivores and carnivores dominate.
Hot desert	Found along the tropics of Cancer and Capricorn.	Hot by day (over 30°C) Cold by night	Very low (below 300mm/year)	Lack of plants and few species; adapted to drought.	Many animals are small and nocturnal: except for the camel.
Temperate forest	Between latitudes 40°- 60° north of Equator.	Warm summers + mild winters (5-20°C)	Variable rainfall (500-1500mm/year)	Mainly deciduous trees; a variety of species.	Animals adapt to colder and warmer climates. Some migrate.
Tundra	Far Latitudes of 65° north and south of Equator	Cold winter + cool summers (below 10°C)	Low rainfall (below 500mm/year)	Small plants grow close to the ground and only in summer.	Low number of species. Most animals found along coast.
Coral Reefs	Found within 30° north - south of Equator in tropical waters.	Warm water all year round with temperatures of 18°C	Wet + dry seasons. Rainfall varies greatly due to location.	Small range of plant life which includes algae and sea grasses that shelters reef animals.	Dominated by polyps and a diverse range of fish species.

