

Question(s) **AQA GCSE Geography Revision**  **Answer(s)** 

What is meant by an ecosystem?

An ecosystem is a natural system of interdependent and interrelated living and non-living components.

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Question(s) **AQA GCSE Geography Revision**  **Answer(s)** 

Define the terms:

- (i) Producers
- (ii) Decomposers
- (iii) Food Chain

PRODUCERS – these convert sunlight into sugars (glucose) through the process of photosynthesis

DECOMPOSERS – these break down plant and animal matter releasing nutrients back into the soil

FOOD CHAIN – these show the direct links between producers and consumers

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Question(s) **AQA GCSE Geography Revision**  **Answer(s)** 

Define the terms:

- (i) Consumer
- (ii) Food Web
- (iii) Nutrient Cycle

Consumer – these get their energy from the food generated by the producer

Food web – these show all the complex connections between producers and consumers in an ecosystem

Nutrient Cycle – this is the way that nutrients are recycled in an ecosystem

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Question(s) **AQA GCSE Geography Revision**  **Answer(s)** 

Describe two examples of inter-relationships in ecosystems

Soil provides nutrients and water for plants. In turn when these die and decompose they release nutrients back into the soil

Fungi and bacteria help to break down dead organic matter which returns nutrients back to the cycle

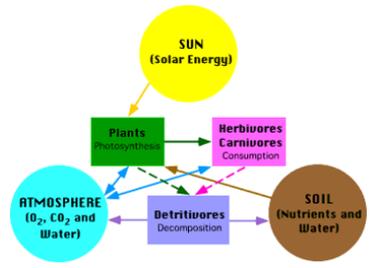
Sunshine and rain is important enabling plants to undertake the process of photosynthesis. Through this they then produce glucose / energy which animals then consume. In turn animals / insects often help with the germination / carrying of seeds to enable plants to reproduce.

Any other relevant inter-relationship accepted

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Describe any two links shown in the diagram



Any two for example:

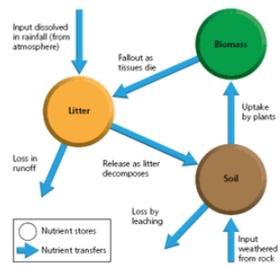
Plants take in CO₂ from the atmosphere via the process of photosynthesis. However, they also release O₂ to the atmosphere.

Detritivores will decompose organic matter from dead plants and animals – these return nutrients to the soil. In turn these are then taken up by plants to grow.

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Question(s) **AQA GCSE Geography Revision** 

Describe how nutrients are recycled in an ecosystem. (you can use the diagram to help).



Answer(s) 

Soil gets some nutrients from the weathering of rock. Plants take up nutrients from the soil which are then stored in the biomass (living matter). As plants and animals die they become organic matter (litter – dead leaves etc.) as these decompose they release nutrients into the soil which are then taken up by plants and so on.

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Question(s) **AQA GCSE Geography Revision** 

Give examples of producers and consumers found in Epping Forest (your example of a small-scale UK ecosystem)



Answer(s)

Producers: Large number of native trees (e.g. oak, birch and hornbeam. Shrubs include hazel. There are also grasses, wildflowers and moss/lichen.

Consumers: rabbits, foxes, badgers, deer etc.

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Name and locate a small-scale ecosystem you have studied in the UK



Answer(s)

Epping Forest – 2,400 acres of ancient deciduous woodland on the border of Greater London and Essex.

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Question(s) **AQA GCSE Geography Revision** 

Give examples of changes to the balance in the Epping Forest Ecosystem.



Answer(s)

- Deer are enclosed in the forests (avoid collisions on roads around forest) but eat a lot of ground level plants / damage trees.
- Pressures from human activities due to surrounding urban areas (e.g. horse riding, walking)
- Pollarding stopped in 1978 – now dense canopy grown letting little light through
- Balance in the forest ecosystem is affected by extremes such as drought (1976-77) and storms (e.g. 1987 Great Storm) causing death of trees.

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Question(s) **AQA GCSE Geography Revision** 

Describe an example of an interrelationship in a small -scale UK ecosystem you have studied.



Answer(s) **Epping Forest – any interrelationship you have studied. For example**

Pollarded trees get new growth of denser branches many of which fall in storms creating dead wood – provides homes for decomposers. These in turn help break leaves down and return nutrients to the soils. In turn these nutrients are taken up in spring / summer – provide fruits, berries and leaves which supports birdlife!

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Question(s) **AQA GCSE Geography Revision**  Astrea Academy Trust
INSPIRING BEYOND MEASURE

How might the loss of a species affect an ecosystem? – describe using an example of an outbreak of disease on bark beetles in an oak woodland.

Answer(s)  ST IVS GEOMETRY

- Disease will reduce beetle population
- More oak trees (because fewer beetles feeding on them)
- Woodpecker numbers will decrease (less beetles to eat)
- Woodpeckers may eat more caterpillars which are a major food source for blue tits – blue tits will decrease in number
- With less woodpeckers owl and hawks which feed on them will decrease in number.

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Question(s) **AQA GCSE Geography Revision**  Astrea Academy Trust
INSPIRING BEYOND MEASURE

Give 4 examples of factors affecting the location of the world's major biomes.

Answer(s)  ST IVS GEOMETRY

Altitude
Ocean Currents
Latitudes
Relief
Distance from the Sea

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Question(s) **AQA GCSE Geography Revision**  Astrea Academy Trust
INSPIRING BEYOND MEASURE

Which biome best fits this description?

Contain trees that lose their leaves and are found across Europe and the USA. The weather is mild and wet. The climate is known as temperate maritime.

Answer(s)  ST IVS GEOMETRY

Temperate Deciduous Woodland

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Question(s) **AQA GCSE Geography Revision**  Astrea Academy Trust
INSPIRING BEYOND MEASURE

Which biome best fits this description?

Surrounds the north and south poles where the sun's rays have little strength. They have an extremely cold climate with limited numbers of plants and animals. Temperatures are below freezing for most of the year.

Answer(s)  ST IVS GEOMETRY

Tundra

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INSPIRING BEYOND MEASURE

Which biome best fits this description?

Here the sun's rays are highly concentrated and there is a high-pressure system due to descending air. The Dry sinking air stops clouds forming. Plant and animal life is highly adapted to heat and lack of moisture.

Answer(s)  ST IVS GEOMETRY

Deserts

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 **Question(s)** AQA GCSE Geography Revision  Astrea Academy Trust
INSPIRING BEYOND MEASURE

Describe the location of Rainforests

Answer(s)  St. Ivo Grammar School

Close to the equator, between the Tropics of Cancer and Capricorn in parts of Central and South America, Western Africa and large parts of Indonesia.

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 **Question(s)** AQA GCSE Geography Revision  Astrea Academy Trust
INSPIRING BEYOND MEASURE

Describe the location of deserts

Answer(s)  St. Ivo Grammar School

Found between 20° and 30° north and south of the equator (mostly in dry continental interiors)

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 **Question(s)** AQA GCSE Geography Revision  Astrea Academy Trust
INSPIRING BEYOND MEASURE

Describe the typical climate of Tropical Rainforests

Answer(s)  St. Ivo Grammar School

These have high rainfall (often over 2500mm a year) and high temperatures (average – 27°C) all year round with a small temperature range. They lack seasons (also known as an equatorial climate).

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 **Question(s)** AQA GCSE Geography Revision  Astrea Academy Trust
INSPIRING BEYOND MEASURE

Account for the high temperatures and rainfall totals found in Tropical Rainforests.

Answer(s)  St. Ivo Grammar School

High temperatures – due to the sun being overhead most of the time (location close to the equator – where sun is most concentrated)

High Rainfall – at this point there is an area of low pressure with air rising in the Hadley cell. Rising air results in condensation and cloud formation and triggers high levels of rainfall.

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 **Question(s)** AQA GCSE Geography Revision  Astrea Academy Trust
INSPIRING BEYOND MEASURE

Describe the main layers of rainforest vegetation

Answer(s)  St. Ivo Grammar School

Emergents (tallest trees) (may be 35-50m tall) – get the most light

Canopy – ‘engine of the rainforest’ most photosynthesis occurs here

Under Canopy – sunlight is more limited – saplings / seedlings wait for larger trees to die / leave gaps

Forest Floor / Shrub Layer – dark / gloomy with little vegetation – lots of plant litter on the floor.

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Question(s) **AQA GCSE Geography Revision**  Astrea Academy Trust
INSPIRING BEYOND MEASURE

Describe the location and main characteristics of the Amazon Rainforest.

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Answer(s)  St Ivo Grammar

Location – covers most of the Amazon basin of South America, found in 9 countries including Peru and Columbia – 2/3 of the Amazon is in Brazil.

Characteristics 6.9 million km² – the world’s largest
At least 40,000 plant species, 1,300 bird species and more than 400 mammal species.

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Question(s) **AQA GCSE Geography Revision**  Astrea Academy Trust
INSPIRING BEYOND MEASURE

Give 4 causes of deforestation in the rainforest

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Answer(s)  St Ivo Grammar

Logging – e.g. for paper and furniture (e.g. Mahogany)
Mining – precious minerals – e.g. bauxite gold and iron-ore (e.g. Carajas – world’s largest iron-ore mine)
Energy – HEP key – rainforest removed, flooded and dams created (e.g. Belo Monte HEP dam)
Road Building – e.g. Trans-Amazonian Highway
Commercial Farming – 70% of deforestation in Amazon due to farming of livestock and crops (e.g. palm oil, soy etc.)
Population Resettlement – e.g. reduce population problems in cities such as Sao Paulo.

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Question(s) **AQA GCSE Geography Revision**  Astrea Academy Trust
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Give 4 examples of the consequences of deforestation (make sure you use your notes and learn examples where possible to be able to develop these points).

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Answer(s)  St Ivo Grammar

Global Warming
Impacts on local climate change
Loss of biodiversity
Soil erosion and fertility
River pollution
Conflict with indigenous tribes

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INSPIRING BEYOND MEASURE

Why are rainforests potentially important for medicines?

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Answer(s)  St Ivo Grammar

Indigenous people have long used plant extracts for treating and curing diseases
Less than 1% of rainforest trees and plants have been tested and many more cures could be found
Examples include Quinine – used in Malaria and Rosy Periwinkle used in the treatment of childhood Leukaemia

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What benefits do rainforest provide to people and the environment?

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Answer(s)  St Ivo Grammar

Benefits to the environment – water and nutrient cycling and protection from soil erosion
Benefits to people – tourists benefit from the forests biodiversity; medicines; resources (e.g. wood, fruits, rubber etc.)
Benefits to people AND the environment – air purification (production of O₂) and acts as a carbon sink – therefore helps with climate regulation and tackling the problem of global warming.

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 **Question(s)** AQA GCSE Geography Revision  Astrea Academy Trust
INSPIRING BEYOND MEASURE

What does sustainable management of the rainforest mean?

Answer(s)  St. Ivo Grammar School

Using goods and services from the rainforest in such a way that they are still available to benefit people in the future.

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INSPIRING BEYOND MEASURE

Give two examples of how rainforests can be managed at the **international level**.

Answer(s)  St. Ivo Grammar School

International Agreements – e.g. International Tropical Timber Agreement – restricting hardwoods taken from the tropical rainforests
Debt Reduction – e.g. ‘debt for nature swaps’ – 2010 – USA agreed to convert a Brazilian debt of £13.5 million into a fund to protect tropical rainforests.
Conservation and Education by NGO’s – e.g. WWF – promoting conservation message in schools / colleges and training conservation workers.

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Why can it sometimes be difficult to get support from national governments to tackle deforestation problems?

Answer(s)  St. Ivo Grammar School

1. Governments not willing to do things that will slow economic development
2. A lot of corruption in the way (e.g. illegal loggers / developers paying bribes!)

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Give examples of management of rainforests at the local level.

Answer(s)  St. Ivo Grammar School

Selective logging (only cutting trees when fully grown – and replacing trees)
Stopping illegal logging
Agroforestry– combining crops and trees
Replanting – collecting seeds from remaining primary forests which are cultivated in nurseries and planted in deforested areas
Conservation and Education – nature reserves and biosphere reserves
Ecotourism – locals benefit from guiding / employment (and educates visitors about need to protect rainforest)

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 **Question(s)** AQA GCSE Geography Revision  Astrea Academy Trust
INSPIRING BEYOND MEASURE

Describe the hot desert climate

Answer(s)  St. Ivo Grammar School

Extreme high temperatures (particularly in summer) with temperature on average 30-34°C. Low annual rainfall – usually between 100-200mm per year and unreliable.

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Question(s) **AQA GCSE Geography Revision**  Astrea Academy Trust
INSPIRING BEYOND MEASURE

Give 3 named examples of Hot Deserts (and their locations)

Answer(s)  ST. IVO GRAMMAR SCHOOL

Sahara Desert – Africa
Atacama Desert – South America
Namib - Africa

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Question(s) **AQA GCSE Geography Revision**  Astrea Academy Trust
INSPIRING BEYOND MEASURE

Explain the reasons for the hot desert climate

Answer(s)  ST. IVO GRAMMAR SCHOOL

Most deserts are at 30° North or South of the equator – air is sinking (high pressure) – as it isn't rising – few clouds forming and little rain. Lack of cloud means hot during the day and very cold at night.

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INSPIRING BEYOND MEASURE

What is the diurnal temperature range like in hot deserts and why?

Answer(s)  ST. IVO GRAMMAR SCHOOL

There is high diurnal temperature range because lack of cloud means that temperatures during the day are very hot. At night temperature fall to very cold as there is nothing to keep the heat in (lack of clouds)

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Question(s) **AQA GCSE Geography Revision**  Astrea Academy Trust
INSPIRING BEYOND MEASURE

What is the definition of a desert?

Answer(s)  ST. IVO GRAMMAR SCHOOL

An area receiving less than 250mm of rainfall resulting in extreme aridity.

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Question(s) **AQA GCSE Geography Revision**  Astrea Academy Trust
INSPIRING BEYOND MEASURE

Describe the key characteristics of soils in hot deserts

Answer(s)  ST. IVO GRAMMAR SCHOOL

Sandy, rocky soils, typically about 1m deep. Lack organic material and may have white powder on the surface where salts are drawn to the surface by evaporation.

(if irrigate some desert land can be productive)

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 **Question(s)** AQA GCSE Geography Revision  Astrea Academy Trust
INSPIRING BEYOND MEASURE

1. Describe the location of the Thar Desert
2. How much area does it cover?
3. What is its population density?

Answer(s)  St. Ivo Grammar

- The Thar desert is located partly in NW India and partly E Pakistan
- Covers 200,000 km²
- Population of 30 million and density of 83/km² (most populated in the world)

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INSPIRING BEYOND MEASURE

Describe 2 examples of opportunities for development in the Thar Desert.

Answer(s)  St. Ivo Grammar

Mineral Extraction – Kaolin (China Clay) can be used in manufacturing of paper. Other valuable minerals – e.g. limestone / white marble

Tourism – desert is popular with tourists – exotic location and culture – provides source of income (can sell souvenirs, act as tour guides etc.)

Farming - commercial crops e.g. cotton can be grown when supported by irrigation using water from the Indira Gandhi Canal

Energy production – solar and wind energy opportunities (e.g. at Bhaleri) and coal and oil extraction in the Barmer district provides income and power electricity parts in Pakistan and India.

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What are the challenges with regards to accessibility in the Thar Desert?

Answer(s)  St. Ivo Grammar

Limited road access across the desert. High temps – cause tarmac to melt.

Cars often overheat, and breakdowns are common

Poor public transport – overladen buses.

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INSPIRING BEYOND MEASURE

What are the challenges of the Thar desert's extreme climate?

Answer(s)  St. Ivo Grammar

Average temps may exceed 50°C in summer

Heat challenge for farmers working outside

Heat leads to high evaporation and salinisation of soils

Livestock need shade from intense sun

Challenge of water shortage (low annual rainfall)

Groundwater main source – but often saline

Drought led to many young leaving area

Some tributaries of the River Luni are only intermittent (only flow during certain seasons).

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 **Question(s)** AQA GCSE Geography Revision  Astrea Academy Trust
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Define the term desertification

Answer(s)  St. Ivo Grammar

This is the process whereby land which once was fertile is gradually turned into a desert.

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INSPIRING BEYOND MEASURE

How can climate change cause desertification?

Answer(s)  ST. IVES GEOGRAPHY

Reduced rainfall in places like the Sahel means drier climate and increase in desertification (less vegetation can grow, ground dries out – with less ground cover soil is eroded and baked hard).

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INSPIRING BEYOND MEASURE

Give 2 examples of human causes of desertification.

Answer(s)  ST. IVES GEOGRAPHY

Over-cultivation – due to demands for more food – leads to soil exhaustion (becomes infertile and turns to dust)
Overgrazing – can lead to vegetation being stripped and trampling causes an increase in runoff
Demand for Fuelwood – trees are stripped of branches – eventually die.
All the above result in soil erosion – vegetation cover is removed, and loose soil is blown away and exposed top soils is baked hard. Rain washes any top soil away.

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INSPIRING BEYOND MEASURE

Describe and explain two examples for managing desertification.

Answer(s)  ST. IVES GEOGRAPHY

Land Management – e.g. Atriplex shrubs in Jordan to trap water, bind soil and provide grazing; ponding banks in Australia to store water; stone lines in Burkina Faso to reduce soil erosion.
Tree Planting – e.g. in Thar Desert – Prosopis Cineraria tree – reduces soil erosion – roots bind soil and stabilise it and provides shade for other plants.
Use of appropriate technology – fuel efficient stoves and solar cookers – to reduce need for fuelwood – reducing deforestation which can lead to soil erosion.

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What is meant by the term appropriate technology

Answer(s)  ST. IVES GEOGRAPHY

Small scale, sustainable improvements / solutions to problems which use simple technologies most suitable for people on a local scale – low cost and sustainable.

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Question(s) **AQA GCSE Geography Revision**  Astrea Academy Trust
INSPIRING BEYOND MEASURE

Describe the characteristics of Tropical Rainforest Soils

Answer(s)  ST. IVES GEOGRAPHY

Quite infertile, heavily leached as rain washes nutrients out leaving iron-rich latosols.

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INSPIRING BEYOND MEASURE

How can there be so much vegetation in the rainforest despite relatively infertile soil?

Answer(s)  ST. IVO GRAMMAR SCHOOL

- Many nutrients in litter layer
- Dead leaves decompose rapidly (heat and moisture)
- Trees / plants have shallow roots quickly collecting nutrients from the litter layer / upper soil
- Fungi helps to break down and release nutrients to the roots

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Question(s) **AQA GCSE Geography Revision**  Astrea Academy Trust
INSPIRING BEYOND MEASURE

Give 3 reasons for the high biodiversity (number of species) living in Tropical Rainforests.

Answer(s)  ST. IVO GRAMMAR SCHOOL

- Long evolution (oldest biome on earth)
- High levels of solar energy and rainfall (ideal growing conditions)
- Range of local habitats providing homes for many species
- Species are highly adapted to compete with others
- Been relatively isolated up until 20th century – with little physical / human disturbance.

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INSPIRING BEYOND MEASURE

Give 3 ways in which plants have adapted in Tropical Rainforests.

Answer(s)  ST. IVO GRAMMAR SCHOOL

Drip Tips – allow heavy rain to drip off leaves to cope with heavy rainfall

Epiphytes – live on branches high up in canopy to get sunlight and nutrients.

Lianas – rooted to the ground but use trees to grow up to canopy to get sunlight

Buttress Roots – help support the base of tall trees enabling them to grow up tall to reach sunlight

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INSPIRING BEYOND MEASURE

Give two examples of how animals have adapted to life in Tropical Rainforest.

Answer(s)  ST. IVO GRAMMAR SCHOOL

Toucan's – strong beaks to crack open hard nuts

Sloths – have fur covered in green algae – camouflage to help escape prey

Squirrel Monkeys – prehensile tails to move quickly from branch to branch in the canopy where most of the food is in the form of fruits and berries.

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INSPIRING BEYOND MEASURE

Name the layers of the Tropical Rainforest vegetation from Top (highest) to bottom.

Answer(s)  ST. IVO GRAMMAR SCHOOL

Emergent Trees

Canopy

Under canopy

Shrub layer / Forest Floor

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