

Y9 – Assessment Point 1 – Revision

Your paper is going to be in two parts:

Year 8 – Recall Questions:

- There will be some recall questions about keywords from y8 – you don't really need to revise for these

Year 9 – Ecosystems Questions:

- These questions will cover everything we've done so far this year, up to and including, plant and animals adaptations in the rainforest
- These questions will be used to assess your understanding so far
- There will be a mixture of short questions, and longer written answers which require you to explain things that we have learnt about
- This should be the main focus of your revision for this test, and that's what you're going to spend your time doing in today's lesson
- This lesson should not be the only revision you do – you need to prepare properly, to give yourself as strong a chance as possible to do well!

What to revise and how to do it:

Your revision should focus on:

- **Food chains and webs; the roles of producers and consumers and why energy is lost**
- **The role of trees within an ecosystem and why they're important**
- **The nutrient cycle (generally, and in the rainforest) and the role of decomposers**
- **Interdependence in ecosystems; especially between animals, vegetation and soil**
- **The location of rainforests, and the reasons for it (explaining why it is hot and wet at the equator)**
- **The rainforest climate – describing what it's like and explaining why it's like that**
- **Challenges in the rainforest and reasons for high levels of biodiversity**
- **Rainforest structure and plant and animal adaptations**

How could you revise?

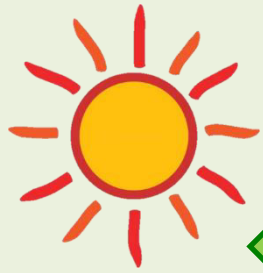
- Do not just read your book!
- Don't use the internet! It's either rubbish or more advanced than you need
- Please make use of the resources available here today (card, A3 paper – take some home if you need to!)

Produce flashcards (key questions on one side, answers on the other – test yourself)

Go back through your work and write a quiz, and an answer sheet – get people at home to ask you the questions

Make copies of notes/diagram/ explanations, and then try to repeat them from memory

Produce mind maps for different topics – use different colours and add images to make them easier to remember



Food Chains

The energy from the sun 'powers' the ecosystem. The energy then moves through the system via food chains



Producers



Primary consumer (herbivore)



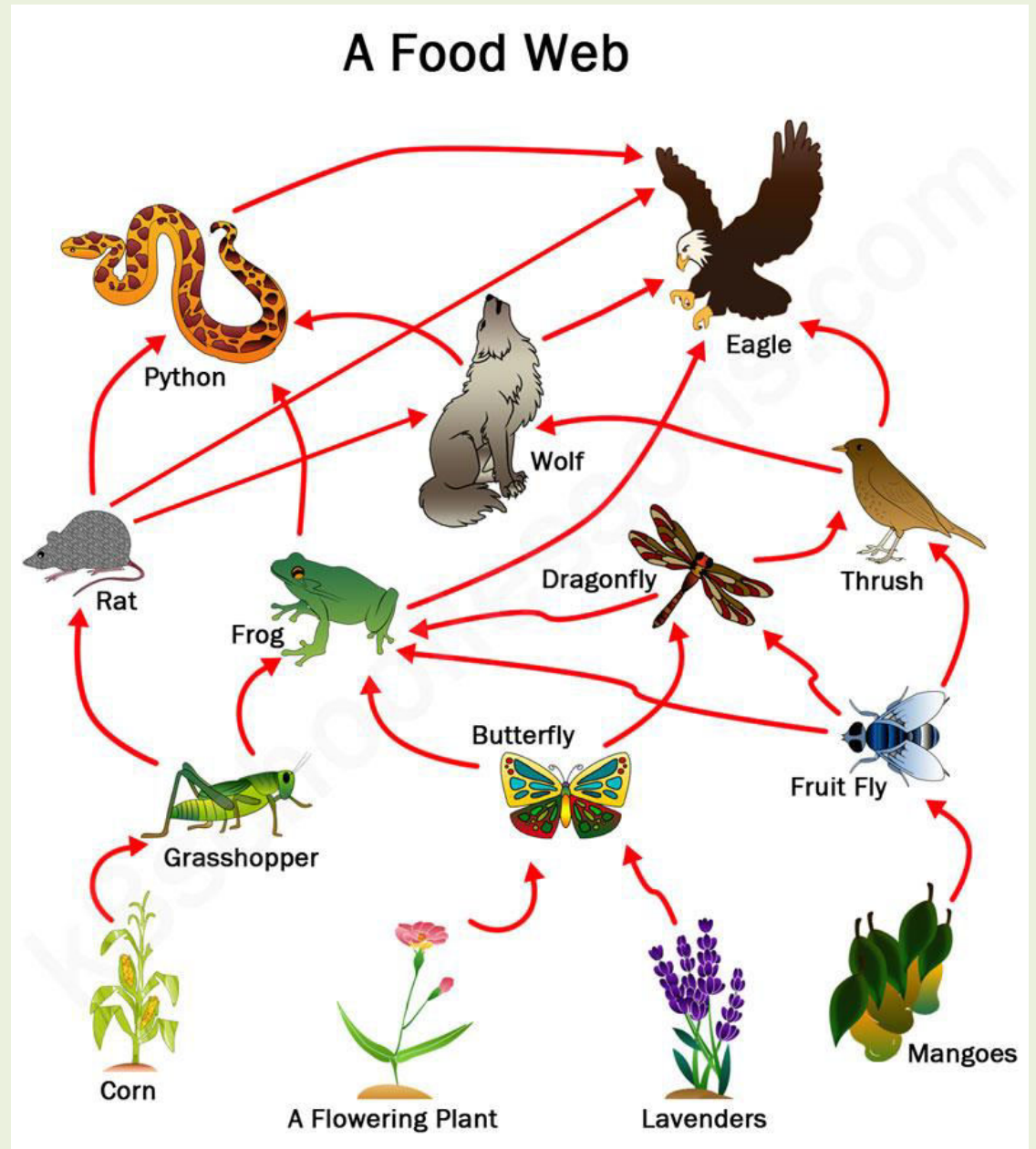
Secondary consumer (omnivore)



Tertiary consumer (carnivore)

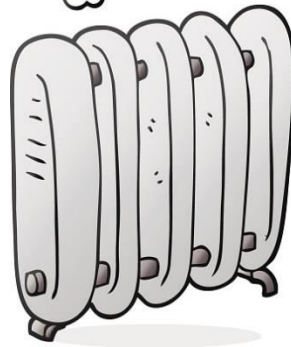
The arrows show the movement of energy through the ecosystem - not 'what eats what'

In most cases, a food chain actually becomes a food web because most things eat more than one other thing



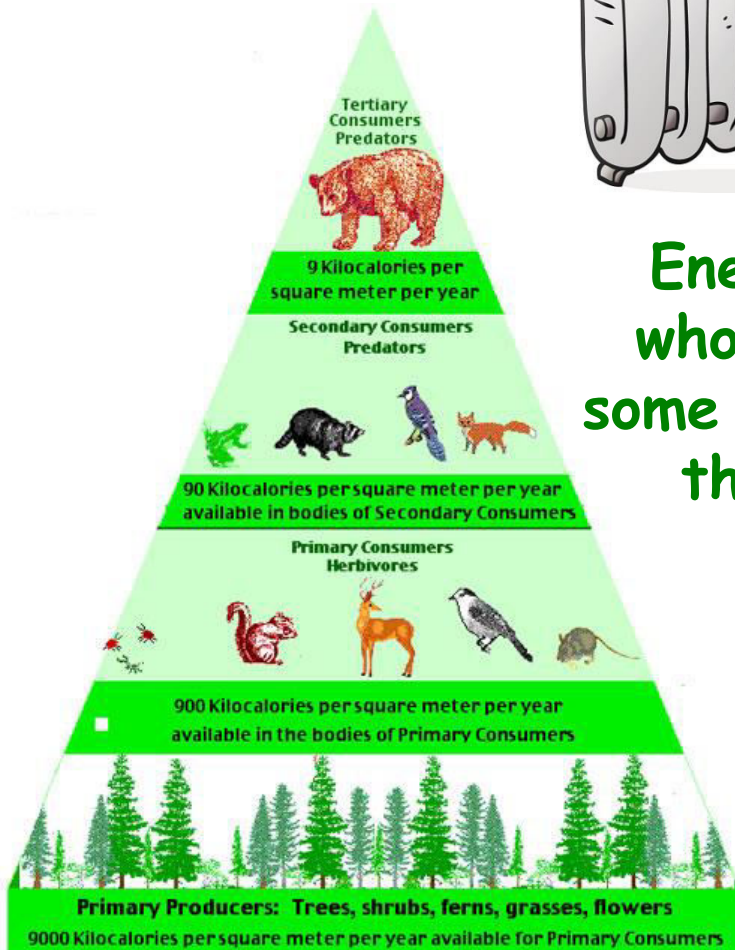
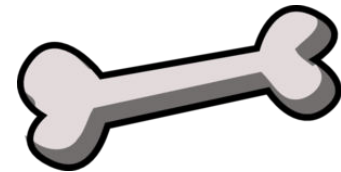
The amount of energy decreases as it is transferred through a food chain/web

Any ideas why?



Energy is lost because animals use energy for heat and for movement

Energy is lost because the whole animal isn't eaten, so some energy stays in the parts that are left e.g. bones



Energy is lost because some of it is pooped (excreted) out by the animals

The Nutrient Cycle

Nutrient Stores

Nutrient flows/transfers



Nutrient Input - Nutrients from chemicals dissolved in rainwater from the atmosphere

Nutrient Output - Some nutrients are lost in the 'runoff' as water flows into rivers and is taken back to the sea

Nutrient Output - As water soaks into the soil and flows back into rivers some of the nutrients are lost with it. This process is known as 'Leaching'

Nutrients within the biomass move to the 'litter' as plants and animals die

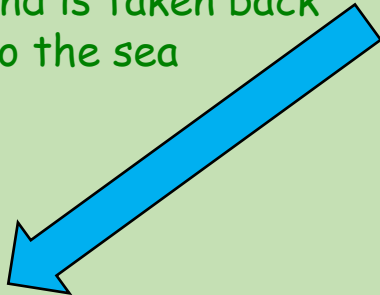
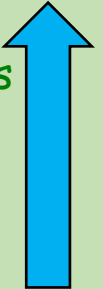
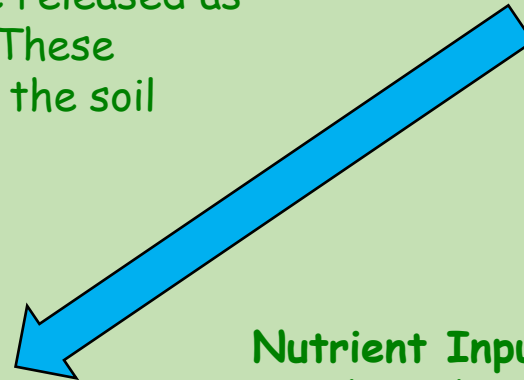
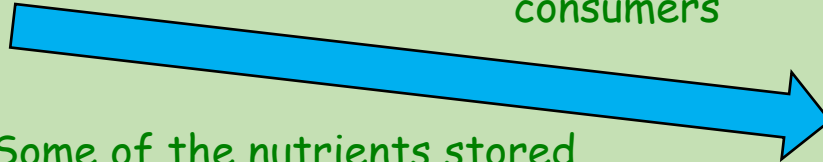
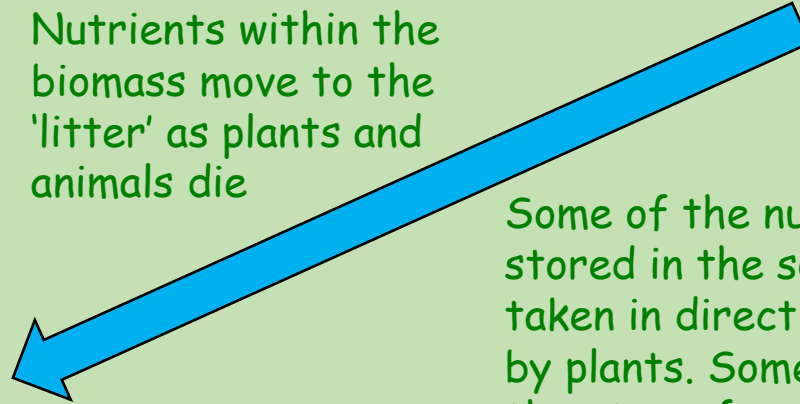
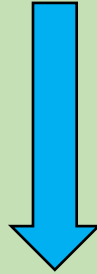
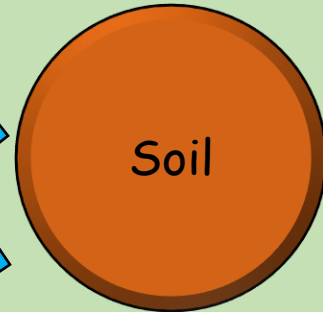
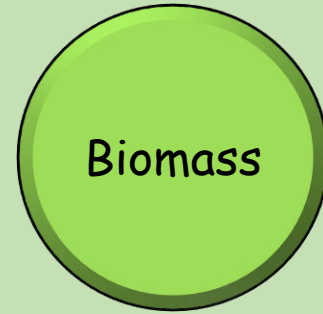
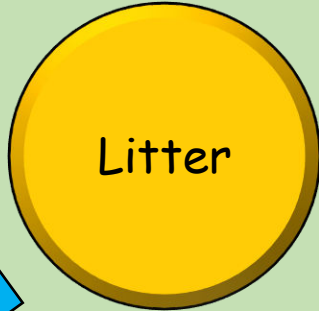
Some of the nutrients stored in the soil are taken in directly by plants. Some are then transferred to consumers

Some of the nutrients stored in the litter are released as it decomposes. These nutrients enter the soil

Biomass

Soil

Nutrient Input - As rock is weathered away nutrients from the rock enter the soil



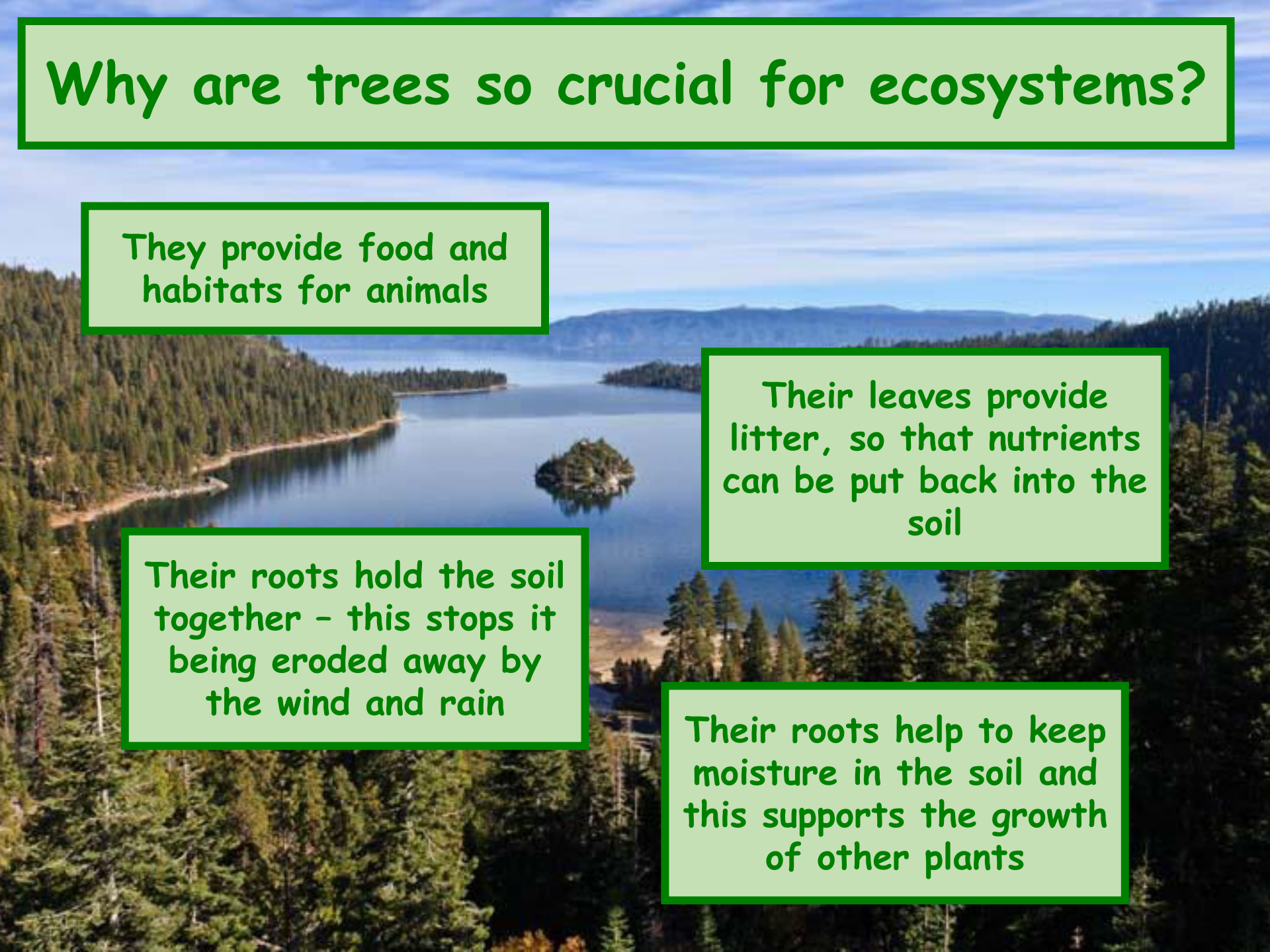
Why are trees so crucial for ecosystems?

They provide food and habitats for animals

Their leaves provide litter, so that nutrients can be put back into the soil

Their roots hold the soil together - this stops it being eroded away by the wind and rain

Their roots help to keep moisture in the soil and this supports the growth of other plants



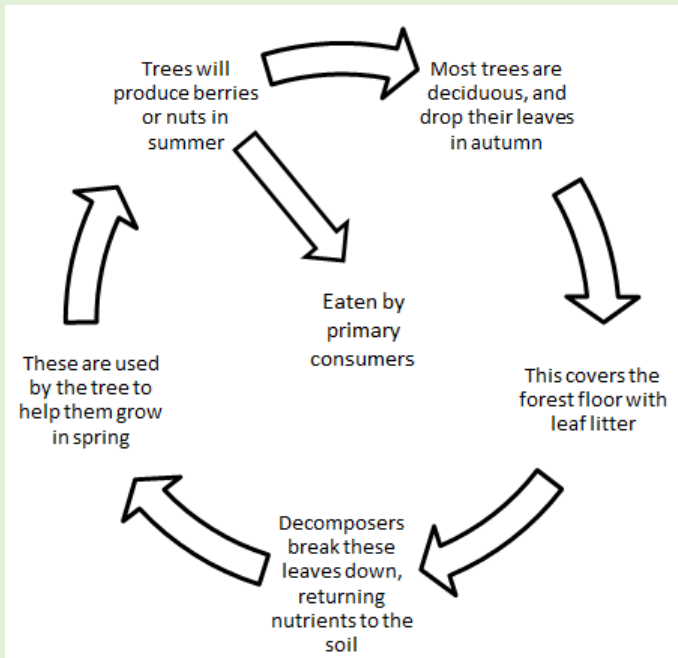
Interdependence in a woodland ecosystem

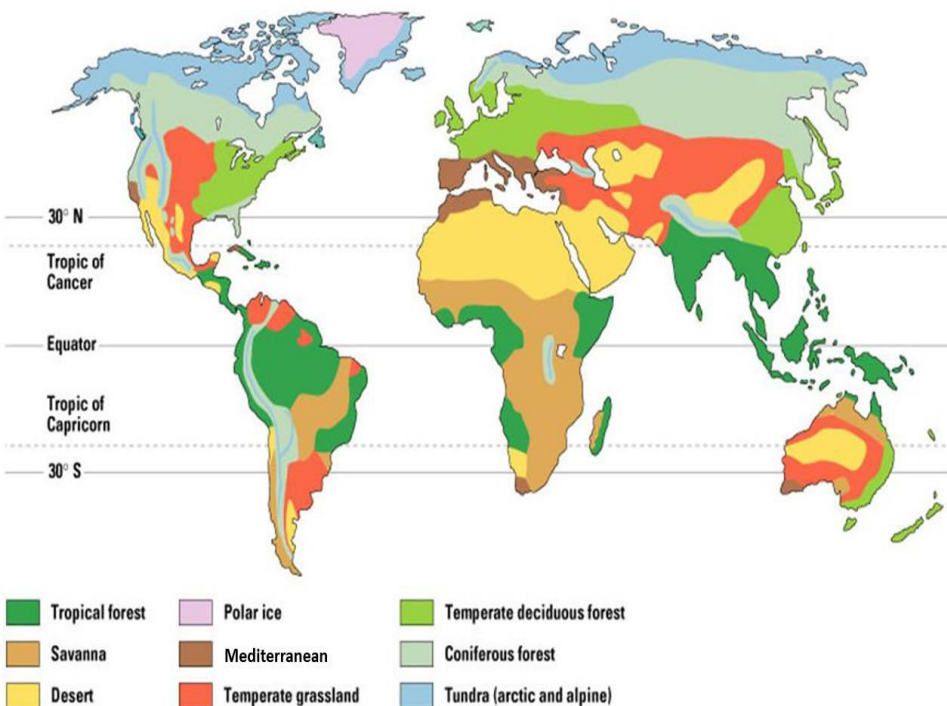
Interdependence means that two different things rely on each other

To understand interdependence, you have to understand that things need each other, not just one thing needing something else.

For example – it is obvious that trees need the soil, because they get nutrients from it, and that helps them to grow.

It's perhaps less obvious that the soil also needs the trees – this is because when their leaves fall, they become part of the litter, which then decomposes and puts nutrients into the soil



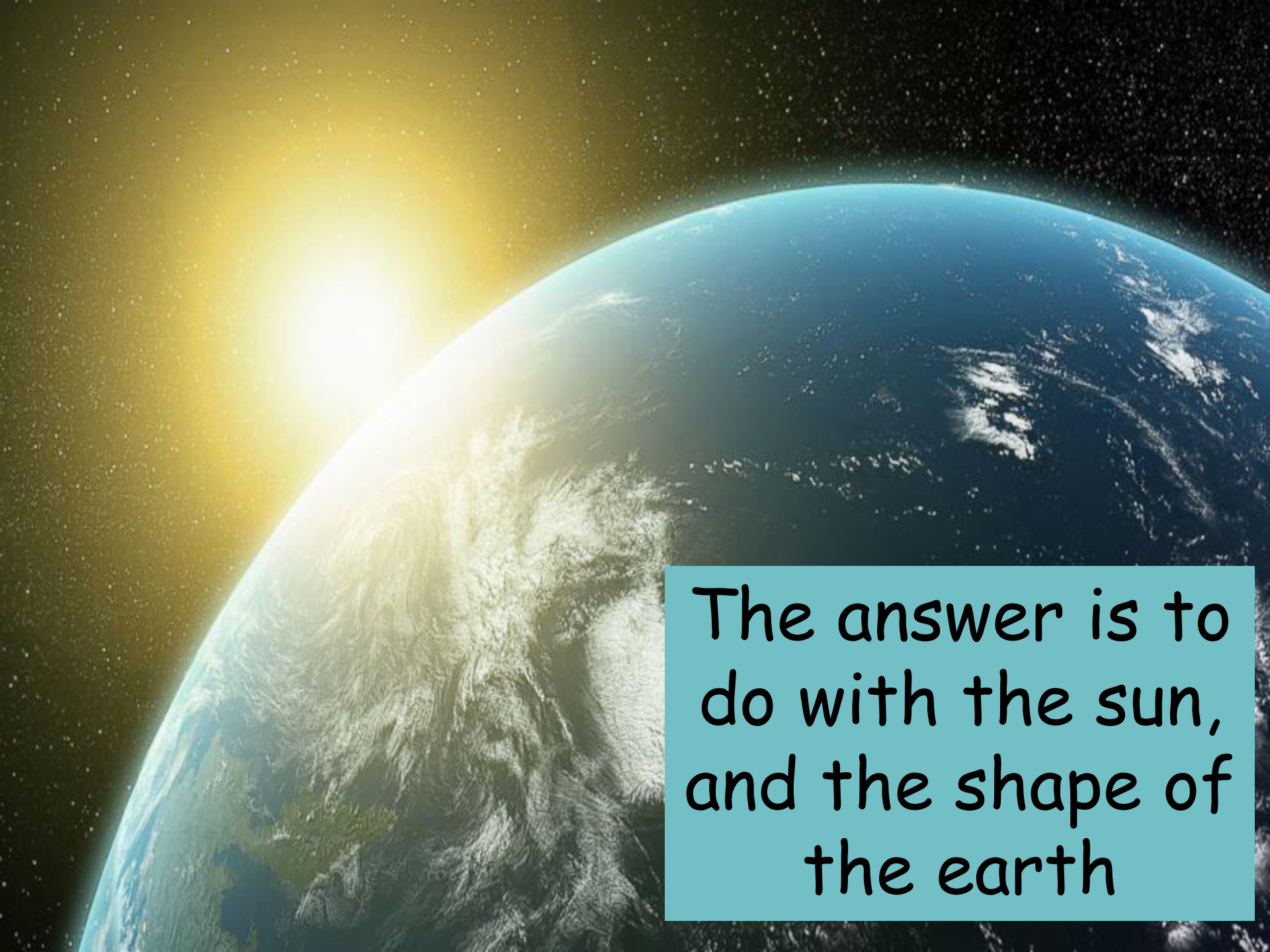


Rainforest Distribution

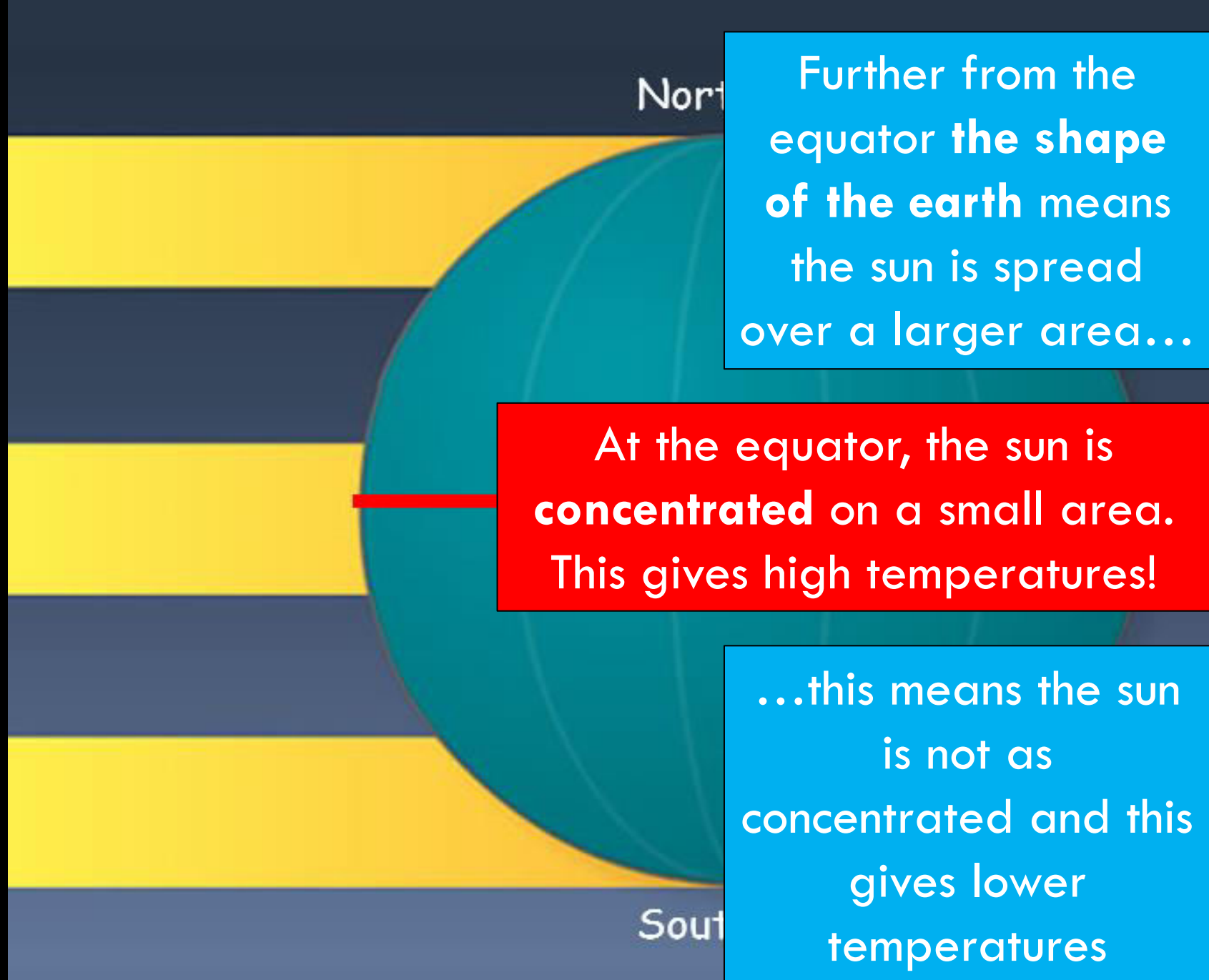
- Found in a band along the equator
- In the north of South America
- In the West of Africa
- South East Asia
- Extreme north of Australia

Why is it warm at the
equator?



A photograph of Earth from space, showing the blue curve of the planet and white clouds. The sun is visible in the upper left, creating a bright yellow and orange glow. The background is a dark space filled with stars.

The answer is to
do with the sun,
and the shape of
the earth



Further from the equator **the shape of the earth** means the sun is spread over a larger area...

At the equator, the sun is **concentrated** on a small area. This gives high temperatures!

...this means the sun is not as concentrated and this gives lower temperatures

Why does it rain at the
equator?



Why do we get rainforests along the equator?

What do we know about temperatures at the equator?

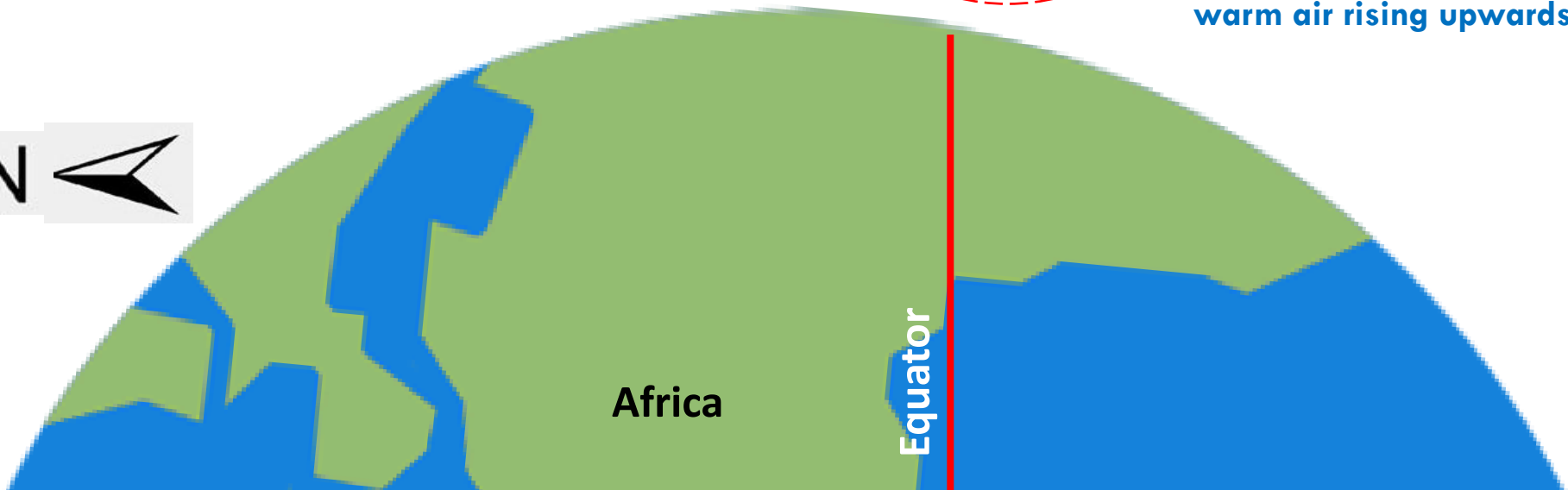
What do the temperatures mean will happen at the equator, linked to rain?



3. These clouds bring a lot of rain and this is why rainforests develop along the equator

2. As the air rises it cools down and condenses to form clouds

1. High temperatures at the equator leads to **lots of evaporation** and lots of **warm air rising upwards**



Warm,
Moist Air

Africa

Equator



The rainforest is a challenging environment for plants and animals



Challenges for plants	Challenges for animals
1. Not a lot of sun reaches the forest floor	1. Not getting eaten
2. Heavy rain can damage leaves	2. Surviving high in the trees because that's where the food is
3. Poor soil	3. Finding enough food

Rainforest Biodiversity

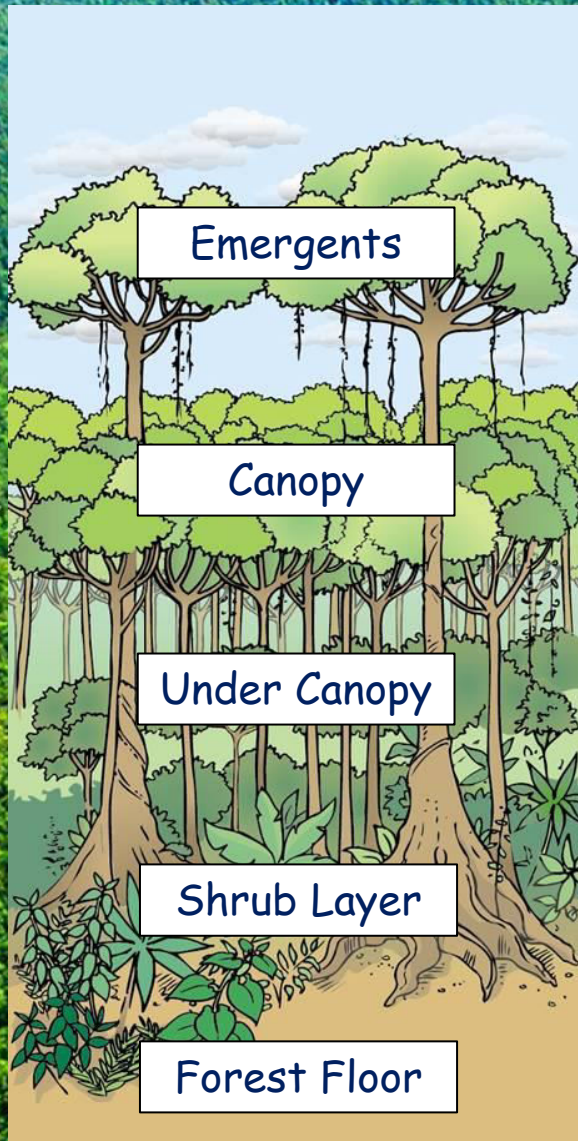
- Biodiversity is short for biological diversity - it means the variety/range of plants and animals found in an area.
- The rainforest has high biodiversity - for example:
 - Rainforests cover less than 2% of the Earth's surface but house an estimated 50% of all life on Earth.

A tropical rainforest may have more than 480 tree species in a single hectare (about the size of a football pitch)

The biodiversity is so high because...

- 1. The warm, wet climate is perfect for plant growth, so lots of plant species can grow there. The high number of plants support lots of animal life, so the number of animal species is also high.*
- 2. The challenging conditions in the rainforest mean that plants and animals have to adapt in order to survive. The various different ways in which plants and animals adapt ends up creating lots of different species and therefore high biodiversity*

The structure of the tropical rainforest.



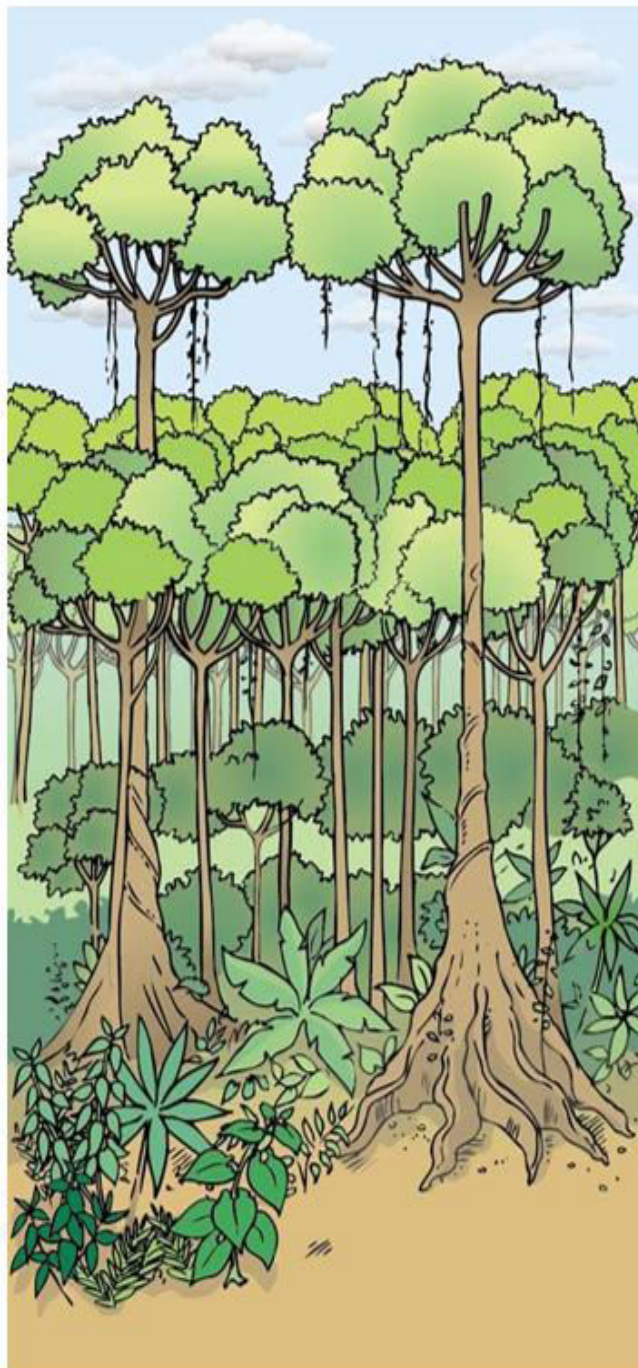
The amount of trees in the rainforest means that it isn't always easy for different plants to get what they need in order to survive i.e. the sun and the rain

With this in mind, plants have adapted and developed strategies that allow them to grow successfully. These different strategies have led to the creation of different layers within the rainforest

The layers are called:

- The emergents (tallest)
- The canopy
- The under canopy
- The shrub layer
- The forest floor (lowest)

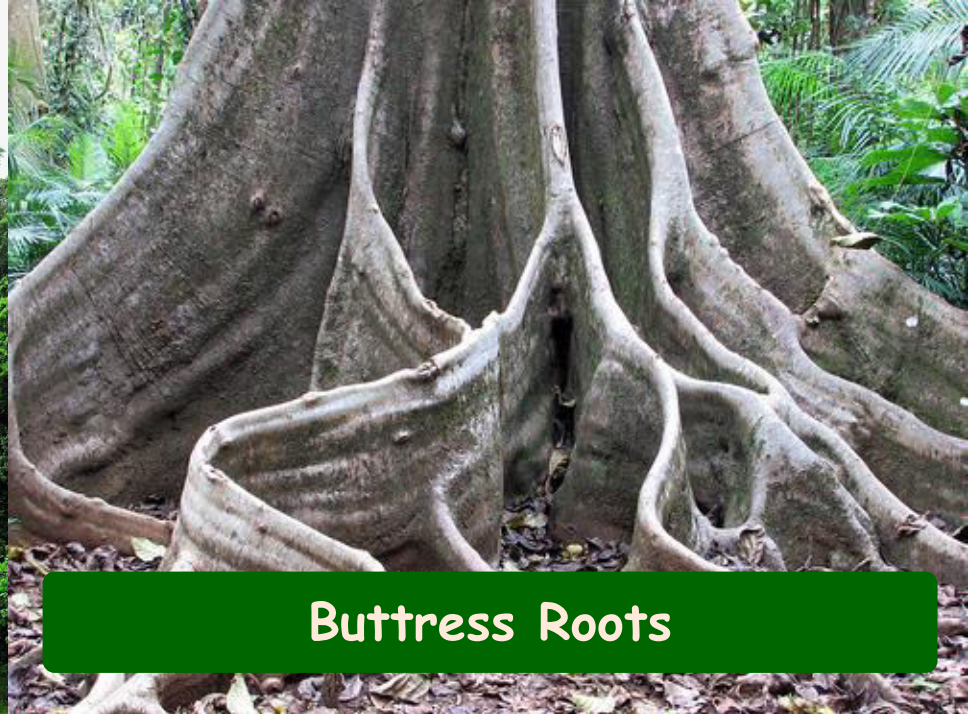
The Structure of the Rainforest



Layer	Description
EMERGENTS	<ul style="list-style-type: none">• These trees can grow up to 50 metres tall• These trees grow high over the rest of the forest. They need large buttress roots to keep them standing.
CANOPY	<ul style="list-style-type: none">• This layer is where most of the rainforest's animals live• Trees in this layer are usually about 25 metres tall
UNDER CANOPY	<ul style="list-style-type: none">• These trees grow to about 10 metres tall and their Branches are often tied together by vines called Lianas• There is a small amount of sunlight here. These smaller trees wait for larger plants to die so that they can see the sun and begin to grow
SHRUB LAYER	<ul style="list-style-type: none">• The plants here have huge leaves to try and capture sunlight• This layer only gets 2-15% of the sunlight
FOREST FLOOR	<ul style="list-style-type: none">• The layers only gets 1-2% of the sunlight• Decomposers recycle the leaf litter on this layer



Emergent Trees



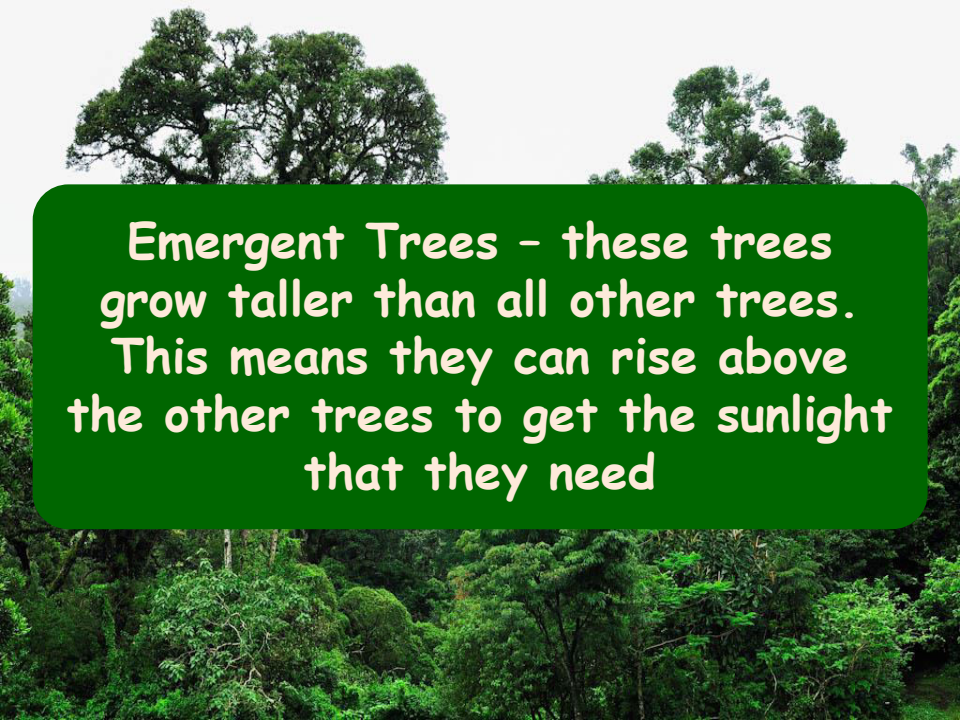
Buttress Roots



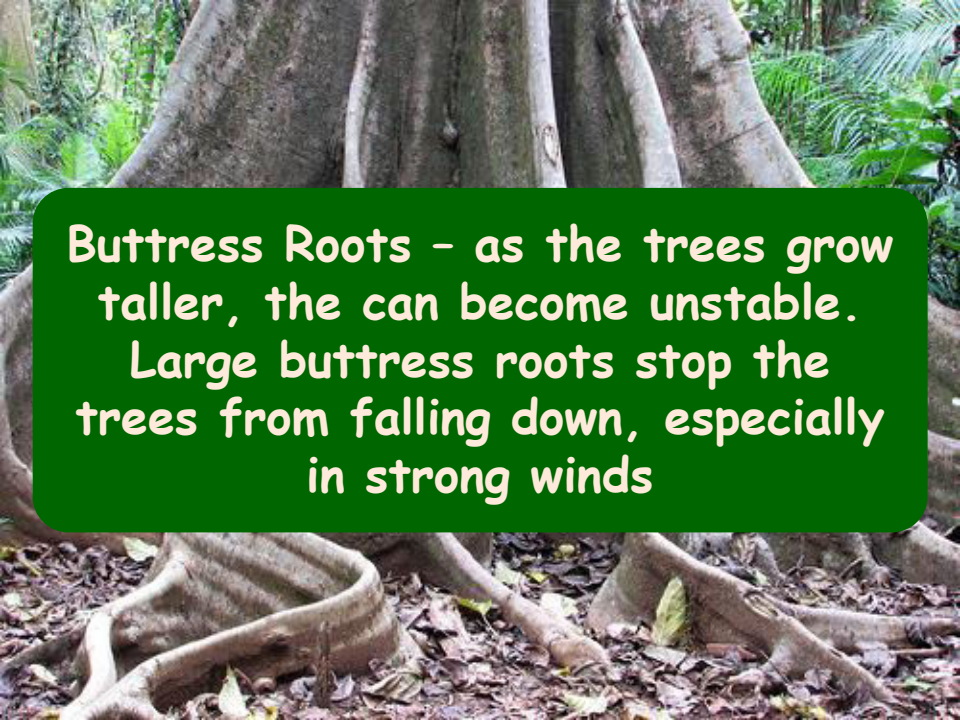
Lianas



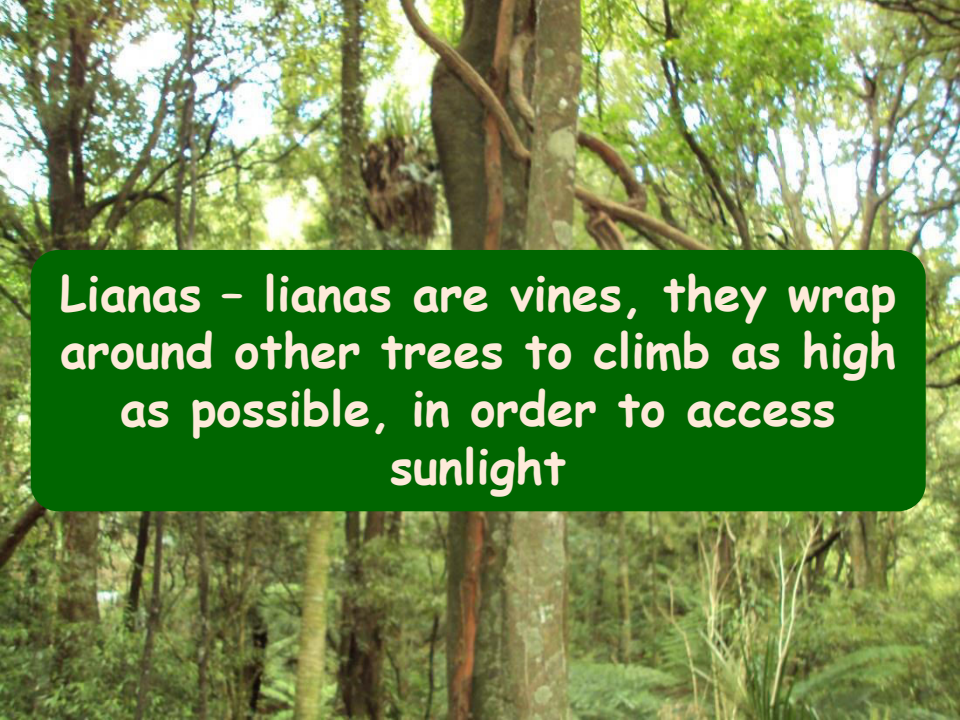
Waxy leaves with drip tips

A photograph showing several tall, slender trees with dense green foliage that rise above the surrounding forest canopy. The sky is visible through the gaps in the leaves.

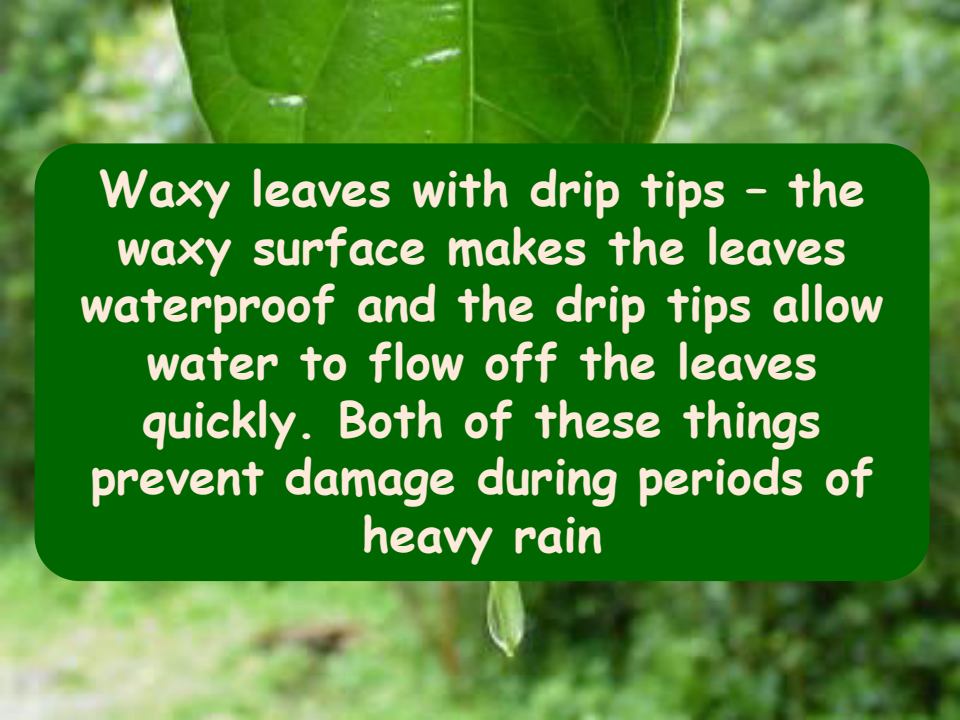
Emergent Trees - these trees grow taller than all other trees. This means they can rise above the other trees to get the sunlight that they need

A close-up photograph of a large tree's base, showing thick, gnarled buttress roots that spread out horizontally from the trunk. The ground is covered with dry leaves and forest debris.

Buttress Roots - as the trees grow taller, they can become unstable. Large buttress roots stop the trees from falling down, especially in strong winds

A photograph of a forest interior where several thin, woody vines (lianas) are seen climbing up the trunks of larger trees. The background is filled with more trees and greenery.

Lianas - lianas are vines, they wrap around other trees to climb as high as possible, in order to access sunlight

A macro photograph of a single, vibrant green leaf. The leaf's surface is highly reflective, showing clear highlights and shadows that emphasize its waxy texture. A small drip tip is visible at the end of one of the veins.

Waxy leaves with drip tips - the waxy surface makes the leaves waterproof and the drip tips allow water to flow off the leaves quickly. Both of these things prevent damage during periods of heavy rain



Orangutan



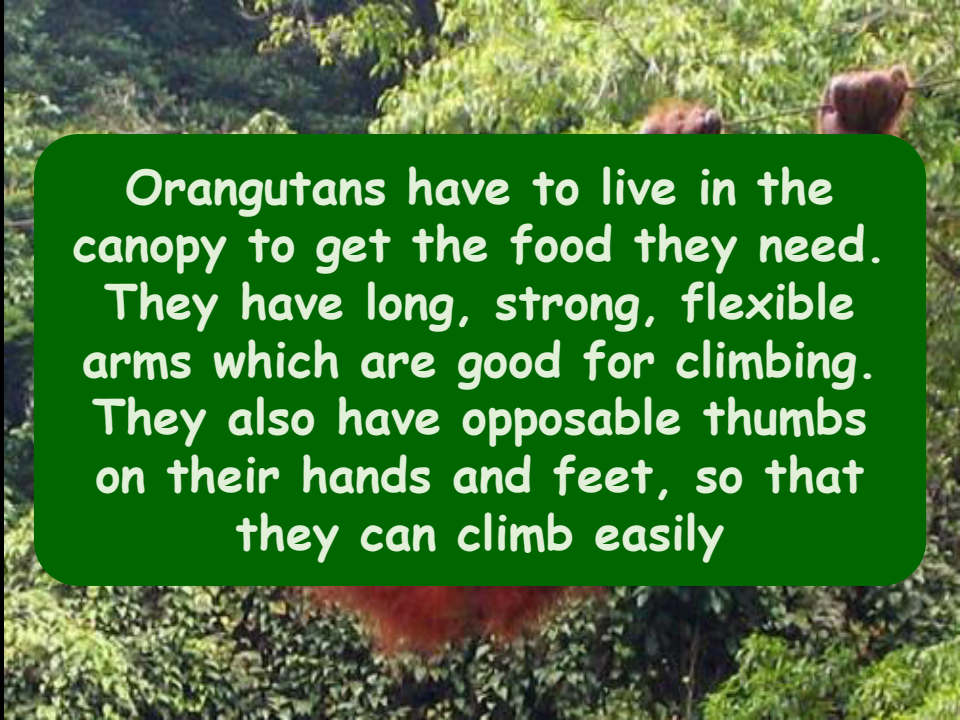
Poison Dart Frogs




Chameleon



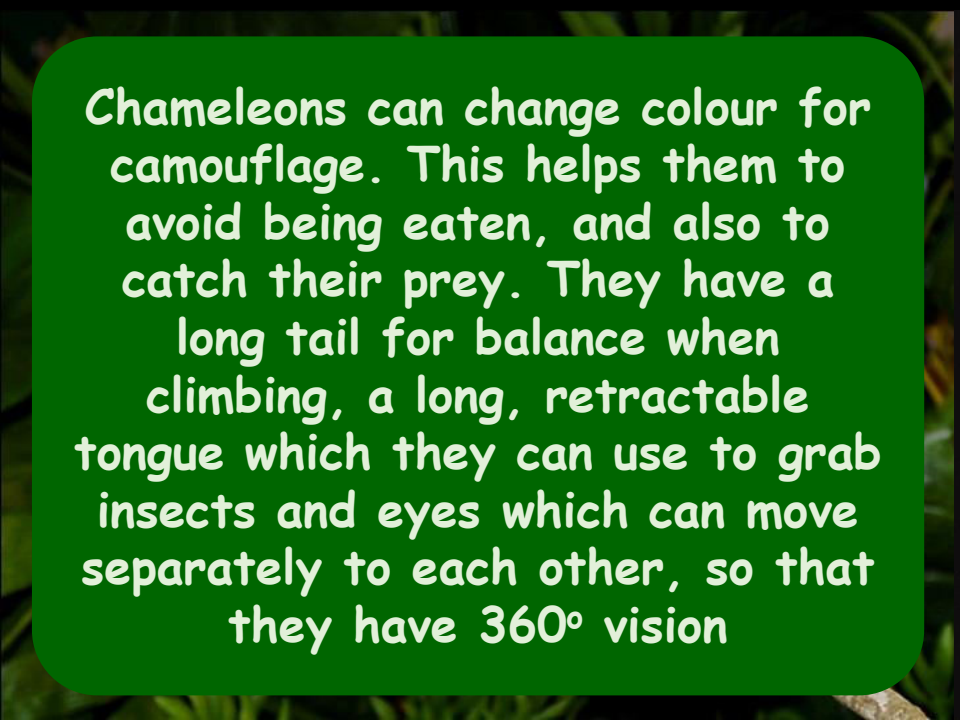
Flying Lemur

A photograph of an orangutan in a lush green forest, partially obscured by branches and leaves.

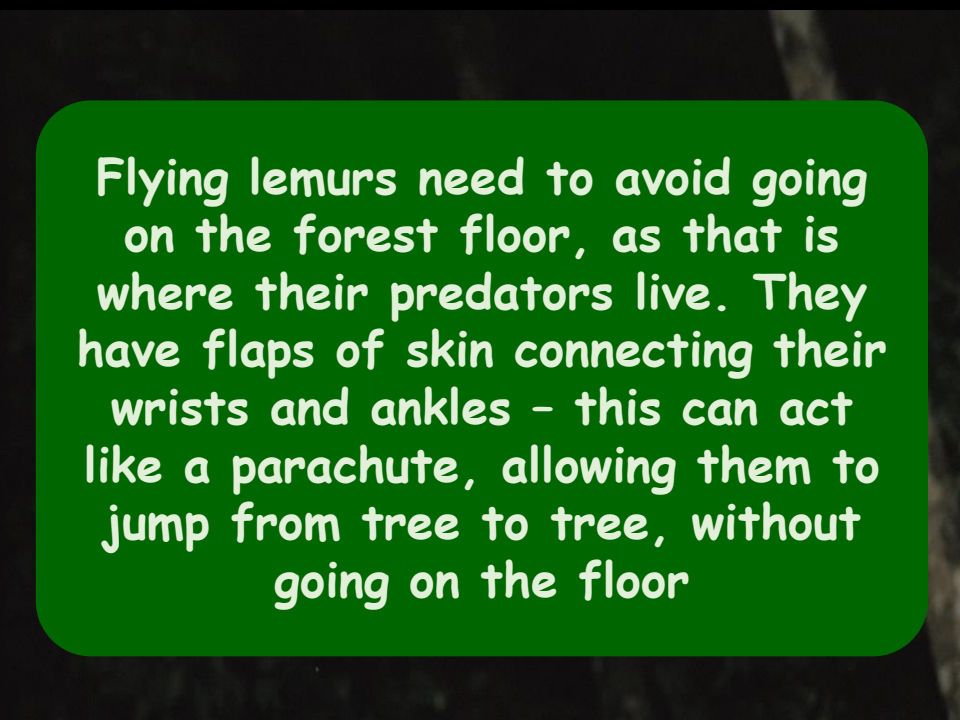
Orangutans have to live in the canopy to get the food they need. They have long, strong, flexible arms which are good for climbing. They also have opposable thumbs on their hands and feet, so that they can climb easily

A photograph of a bright orange and black poison dart frog, with its body and legs visible against a dark background.

Poison dart frogs - the frogs bright colours make it stand out however if animals eat them, and are poisoned, they remember the colours and therefore don't eat other members of the species in future

A photograph of a chameleon, showing its long tail and body, with its head and eyes visible.

Chameleons can change colour for camouflage. This helps them to avoid being eaten, and also to catch their prey. They have a long tail for balance when climbing, a long, retractable tongue which they can use to grab insects and eyes which can move separately to each other, so that they have 360° vision

A photograph of a flying lemur, showing its body and long limbs, with its wings spread out.

Flying lemurs need to avoid going on the forest floor, as that is where their predators live. They have flaps of skin connecting their wrists and ankles - this can act like a parachute, allowing them to jump from tree to tree, without going on the floor