

Rainforests

What Is A Rainforest?



Active Wild

Active Wild Workbooks

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In section 1 of this minibook you'll find out what a rainforest is. You'll also meet some of the animals that live in rainforests.

Section 2: Rainforest Features

All rainforests have certain things in common – no matter where they are in the world. In section 2, you'll discover the features of a typical rainforest.

Section 1: What Is A Rainforest?

Rainforests are places not only of great beauty, but also of great importance. In this section, you'll find out what rainforests are, and what makes them so special.

Rainforests

Rainforests are dense forests that grow in areas with **high rainfall**. They create unique **ecosystems** that are known for their high **biodiversity**.

(An **ecosystem** is a community of living things and their environment.)

(**Biodiversity** is the number of different species found in an area. If an area is home to a large number of species, it is said to be '**biodiverse**'.)

Why Are Rainforests Important?

Although rainforests only cover around **6 percent** of the world's land surface, they are home to **at least half** of the planet's plant and animal species.

One tenth of all known species are found in the **Amazon Rainforest** alone.

Many species that live in rainforests are only found in this habitat, and would be unable to exist anywhere else.

Millions of people around the world also depend on rainforests for their food, homes and livelihoods.

Other Benefits of Rainforests

Rainforests form their own 'mini-climates', and help to regulate local weather. They also prevent flooding by soaking up excess rainfall.

If used wisely, rainforests can provide us with sustainable goods such as food, building materials and medicines.

Types of Rainforest

There are two main types of rainforest: **tropical rainforests** and **temperate rainforests**. Both grow in areas that receive a high amount of rain.

Tropical rainforests grow near the **Equator** (an imaginary line that circles the center of the Earth). The climate near the Equator is hot all year round and there is little difference between the seasons.

Temperate rainforests grow in cooler regions away from the Equator. They are found in both the Northern and Southern

Hemispheres (i.e. they grow on both the 'top' and 'bottom' halves of the world).

Primary & Secondary Forests

Primary forests are forests that are untouched. They have remained in their natural state for many millions of years. (The Amazon Rainforest is over 55 million years old!)

Secondary forests are forests that have re-grown after having been harvested.

Definition Of A Rainforest

A rainforest is a forest that grows in a region with high rainfall.

How much rain? At least 2 m (79 in.) will fall on a rainforest each year. Many rainforests have as much as 4.5 m (177 in.) of annual rainfall ... and some have even more!



Toucan

Quick Questions 1

1. What fraction of the world's animal and plant species live in rainforests?

- a) One tenth _____
- b) One third _____
- c) Over one half _____

2. Where do tropical rainforests grow?

- a) Near the Equator _____
- b) In cool regions away from the Equator _____

3. If a forest has never been harvested it is a ...

- a) primary forest _____
- b) secondary forest _____

4. How much rain falls on a rainforest every year?

- a) Around 1 meter _____
- b) 2 meters or more _____

Lowland Tropical Rainforest

Picture the scene ...

You're deep inside a rainforest, surrounded by tall trees and dense vegetation. The climate is hot and damp, and the leaves are dripping with moisture.

It's probably raining, but from where you're standing it's hard to tell; the leaves and branches form a roof over your head. You can only see glimpses of the sky. Very little sunlight reaches the forest floor.

*In the branches above you are exotic birds such as **scarlet macaws** with red, yellow and blue feathers, and **toucans** with brightly-colored bills.*

*You watch a troop of **howler monkeys** playing in the trees. The air is filled with their loud cries.*

The rainforest is very beautiful, but you need to be on your guard; the trees are home to some fearsome predators ...

... a **jaguar** might be creeping through the undergrowth. A **boa constrictor** could be waiting in the branches, ready to strike!

The scene describes a **lowland tropical rainforest**, one of several types of tropical rainforest.

Lowland rainforests are the 'typical' rainforests. They are located near the **Equator**, and have moist, warm climates all year round.

The Amazon Rainforest in South America is an example of a lowland tropical rainforest.

The Amazon Rainforest is the biggest rainforest in the world!



Howler Monkey



Lowland Rainforest

Quick Questions 2

(Tick the correct answer. Hint: use the 'picture the scene' section to help!)

1. Imagine that you're in a lowland tropical rainforest.

Would you be ...

a) Shivering in the cold _____

b) Sweating due to the heat _____

2. What would the weather forecast be in a tropical rainforest?

a) Very hot with lots of rain _____

b) Cold and dry _____

3. Can you name a noisy type of rainforest monkey?

4. Can you name a rainforest bird?

5. Can you name a rainforest predator?

Activity: Draw A Rainforest Scene

In the space below, draw a scene from a lowland tropical rainforest. Don't forget to include some rainforest animals! (You can find a list of rainforest animals here: <http://www.activewild.com/rainforest-animals-list/>)

Section 2: Rainforest Features

All rainforests have certain things in common no matter where they are in the world. In this section, you'll discover what those things are.

Rainforest Layers

Rainforests have four layers. Each layer is at a different height and creates a habitat for a different group of plants and animals.

The four rainforest layers are shown below:

Emergent Layer

The **emergent layer** consists of the tops of the tallest trees in the rainforest.

Canopy Layer

The branches and leaves of most of the rainforest trees form the **canopy layer**.

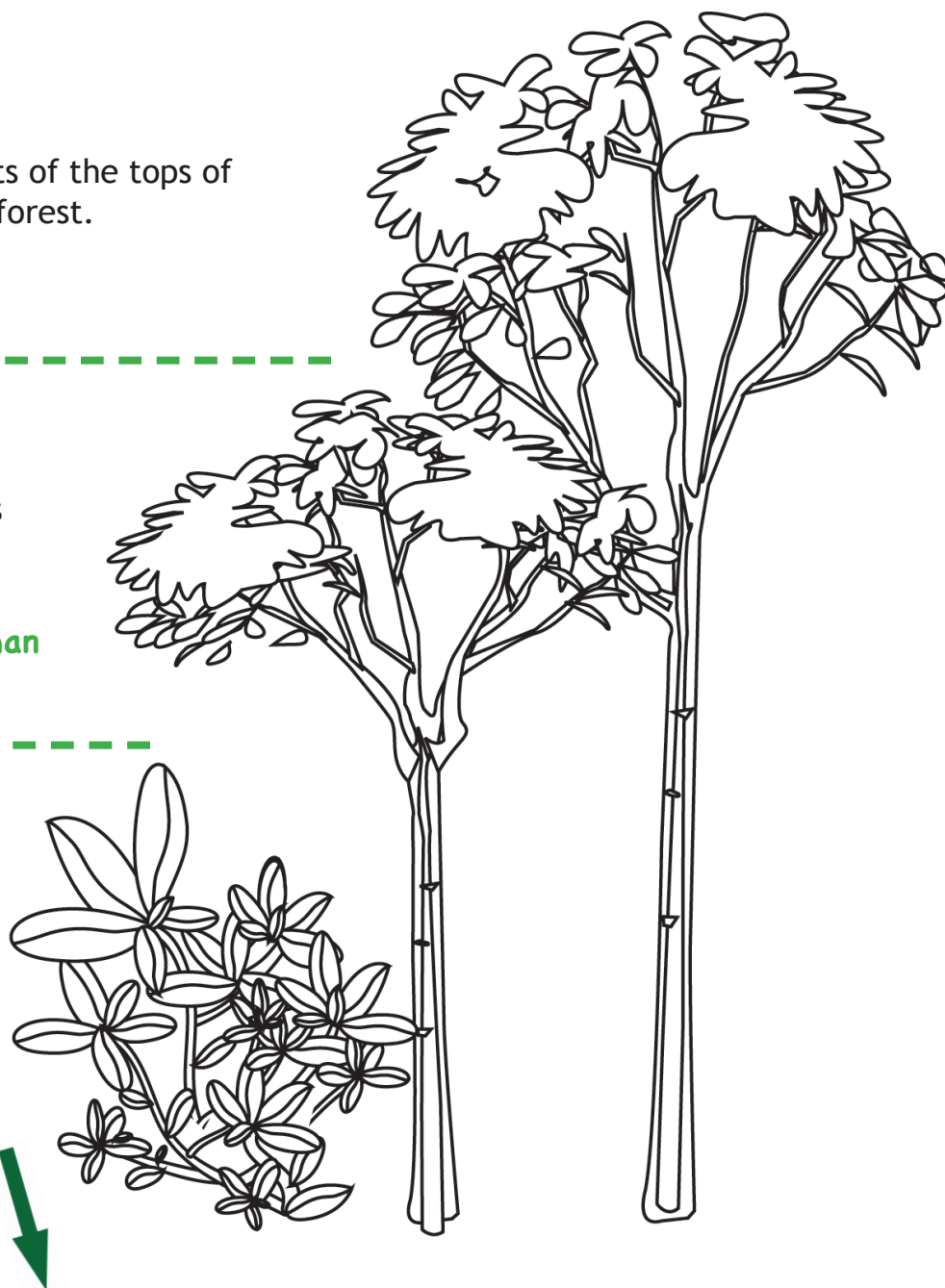
More animal and plant species are found here than in any other layer.

Understory Layer

The **understory** consists of small trees and shrubs that are able to live in low-light conditions.

Forest Floor

The **forest floor** layer is damp, dark and hot. It's home to the rainforest's largest animals ... and lots of creepy-crawlies!



Forest Floor



The forest floor is a hot, humid and dark place. Only 2% of the sunlight that falls on a rainforest reaches this layer.

The forest floor is covered with decaying plant and animal matter. This provides an ideal environment for small invertebrates such as bullet ants, beetles, centipedes and other creepy-crawlies.

The forest floor is home to the rainforest's largest animals.

In South American rainforests the largest land animals are tapirs (pig-like mammals with long noses). The largest predator is the black caiman, a semiaquatic reptile in the alligator family. Jaguars—the largest cats of the Americas—are also found stalking through the trees on the forest floor.

Animals found on the forest floor in African rainforests include gorillas, African forest elephants and okapis (rare relatives of the giraffe).

Ground-dwelling animals in Asian rainforests include tigers, sambar (a large species of deer), sun bears and Malayan tapirs.

Understory



The understory consists of leafy bushes, small trees, shrubs, saplings (young trees) and vines.

The understory layer only gets around 5% of the rainforest's sunlight.

The plants that grow here tend to have large leaves in order to capture what little light is available to them.

You may see lines of leafcutter ants marching up and down the branches of the understory.

Mammals such as coatis (cat-sized, short-haired members of the raccoon family) and tamanduas (tree-climbing anteaters) are also found in this layer.

Snakes such as boa constrictors and emerald tree boas lie in wait in the understory, ready to drop down onto their unsuspecting prey on the forest floor.

Cats such as jaguars and ocelots (or, if you're in an African rainforest, leopards) also climb into the understory layer to rest and to hunt.

Canopy Layer



The canopy layer consists of the branches and leaves of most of the rainforest's trees. This layer is between 30 and 45 metres (100 and 150 ft.) from the ground.

More plant and animal species live in the canopy than anywhere else in the rainforest!

The canopy captures most of the sunlight that falls on a rainforest. Rainforest plants are in a constant battle to reach the valuable sunlight available here.

Animals that live in the canopy layer of South American rainforests include red-eyed tree frogs, howler monkeys, spider monkeys, sloths, silky anteaters, toucans and iguanas.

Animals that live in the rainforest canopy layer in other parts of the world include orangutans, slow lorises, aye-ayes and sugar gliders.

Emergent Layer



A few of the very tallest trees in the rainforest break through the canopy to form the emergent layer: the highest rainforest layer.

The emergent layer is over 45 m (150 ft.) from the ground (in some areas, the tallest trees are over 70 m / 230 ft.).

The emergent layer is breezy, wet and lacking in shelter. It can also be extremely hot, and is a rather inhospitable place. It doesn't provide a suitable habitat for many plant or animal species.

Animals found in the emergent layer include birds such as harpy eagles (when they're not hunting in the canopy layer) and scarlet macaws.

Monkeys such as capuchins occasionally venture into the emergent layer. Butterflies such as blue morphos and bats such as flying foxes can also be seen here.

Activity: Rainforest Layers

Complete the diagram below by crossing out the wrong answers and filling in the gaps ...

_____? Layer

This layer consists of **most of** | **only the tallest of** the rainforest's trees.

Name 2 animals found here:

1. _____
2. _____

_____? Layer

More | **Fewer** species are found here than anywhere else in the rainforest.

Name 2 animals found here:

1. _____
2. _____

_____? Layer

Plants found in this layer have to be able to cope with:

lots of sunlight | **low sunlight**.

Name 2 animals found here:

1. _____
2. _____

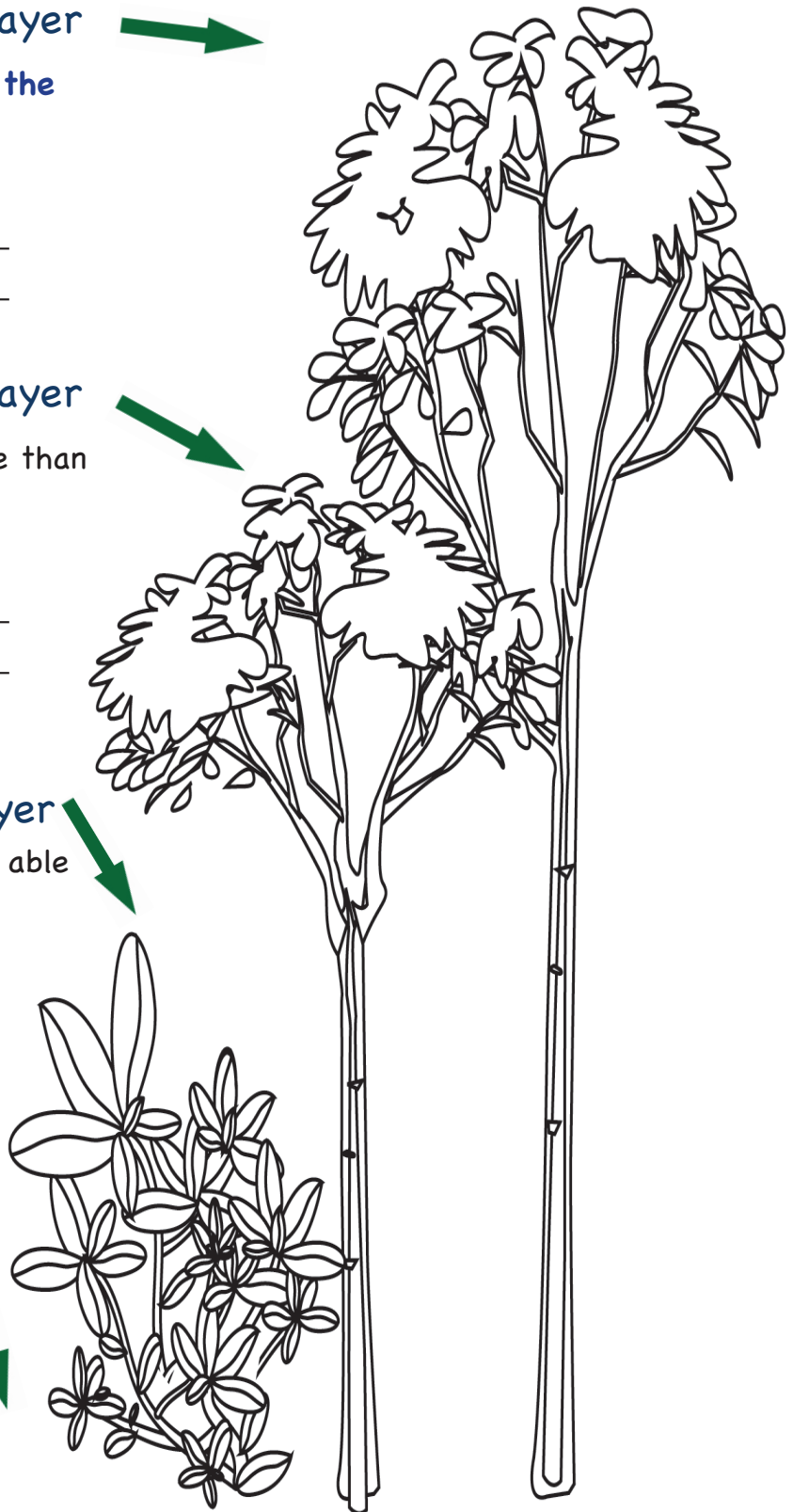
_____? Layer

This layer is:

cold and bright | **warm and dark**.

Name 2 animals found here:

1. _____
2. _____



More Rainforest Features

Buttress Roots

Rainforest soil is often very thin and shallow. It provides little support for plants. For this reason, many rainforest trees have **buttress roots**. Buttress roots emerge from the tree trunk above the ground, and spread out over a wide area.

Buttress roots help to support tall rainforest trees in the shallow soil. They also allow the trees to obtain nutrients from a wider area than normal roots.



Epiphytes

Epiphytes are plants that grow on other plants. They are very common in rainforests. Many epiphytes have special roots that allow them to obtain water from the air.

Plants that are epiphytes include mosses, vines, bromeliads (see below) and many orchids.

Bromeliads

Bromeliads are a family of plants found mainly in tropical areas. Bromeliads have a tight cluster of spiky leaves which form a watertight chamber. Rainwater collects in this chamber, creating a pool that is used by rainforest animals not only as a source of water, but also as a home.

Insect larvae, tadpoles and other small creatures are often found living in bromeliads.

An example of a bromeliad is the pineapple. Pineapples first grew in South America before being introduced to other parts of the world.





Lianas

Lianas are thick, woody rainforest vines. They make their way up to the canopy by wrapping themselves around the trunks of trees.

In doing so they create walkways that allow animals such as monkeys to reach the canopy layer.

Stilt / Prop Roots

Stilt roots (also called prop roots) grow out of the sides of a tree to support it, much like the ropes that hold up a tent.

Stilt roots are often seen on trees in mangrove forests.

Mangrove forests grow by the sea and are flooded for most of the time.



A typical bromeliad



The bromeliad in the picture above is an epiphyte.

Activity: Test Your Rainforest Knowledge!

Draw a line between the description and the corresponding word / phrase.

Woody vines that grow on other trees. They form walkways that are used by monkeys and other animals to climb into the canopy.

A brightly-colored rainforest bird.

The layer of a rainforest in which most species are found.

The Amazon is an example of this type of rainforest.

Plants that grow on other plants

These roots help to support tall rainforest trees in shallow soil.

A rainforest that grows in a cool region away from the Equator.

A type of rainforest monkey that is known for its loud call.

Pools of water form in the leaves of these rainforest plants, making a home for animals such as frogs.

Trees in mangrove forests often have this type of root.

The layer of the rainforest in which the largest animals are found.

The largest member of the cat family in the Americas

Buttress Roots

Lianas

Epiphytes

Jaguar

Temperate Rainforest

Lowland Tropical Rainforest

Stilt Roots

Canopy Layer

Scarlet Macaw

Forest Floor

Howler Monkey

Bromeliads

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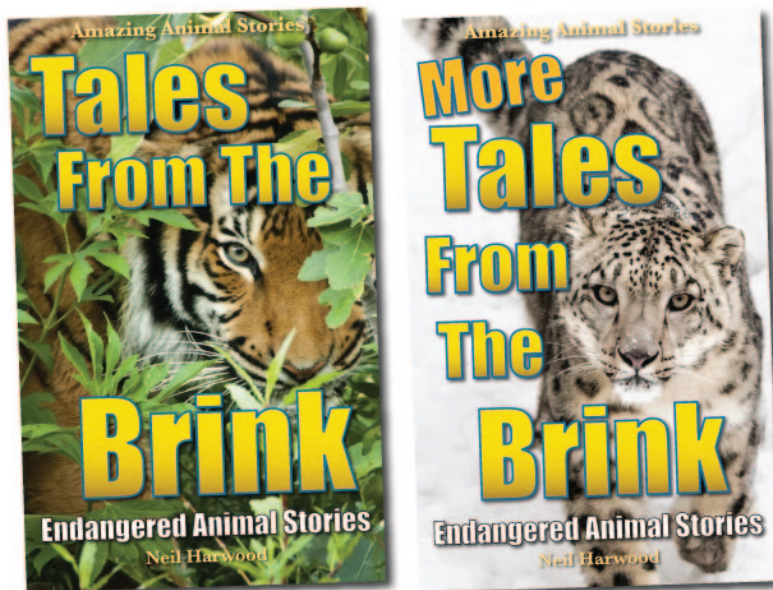


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