

4th Grade | Unit 5



HISTORY & GEOGRAPHY 405 TROPICAL RAINFORESTS

	Introduction 3
1.	Rainforests of the World Facts about Rainforests 6 Plants and Animals 11 People and the Rainforest 14 Self Test 1 19
2.	The Amazon Rainforest 22 The World's Largest River System 23 History of Amazonia 27 Amerindians of the Amazon 33 Self Test 2 37
3.	The Congo Rainforest The Congo River 41 History of the Congo 46 People of the Congo Rainforest 51 Self Test 3 56 LIFEPAC Test Pull-out

Author:

Theresa K. Buskey, B.A., J.D.

Editor:

Alan Christopherson, M.S.

Assistant Editor:

Annette M. Walker, B.S.

Media Credits:

Page 3: © odmeyer, iStock, Thinkstock; 4: © Frederic Prochasson, iStock, Thinkstock; 9: © Richard Orr, Dorling Kindersley, Thinkstock; 12: © Ameng Wu, iStock, Thinkstock, © Eric Isselée, iStock, Thinkstock; 13: © Omar Ariff, iStock, Thinkstock, © Ammit, iStock, Thinkstock; 14: © Nelson A. Ishikawa, iStock, Thinkstock; 16: © kviktor01, iStock, Thinkstock; 22: © estivillml, iStock, Thinkstock; 26: © Sohadiszno, iStock, Thinkstock, © Dorling Kindersley, Thinkstock; 28: © Izf, iStock, Thinkstock; 30: © Judy Dillon, iStock, Thinkstock; 32: © atosan, iStock, Thinkstock; 34: © walking onstreet, iStock, Thinkstock; 40: © Alejandro Palacio, iStock, Thinkstock; 42: © Robert Ford, iStock, Thinkstock; 44: © Anke Van wyk, Hemera, Thinkstock; 45: © Dave Barfield, iStock, Thinkstock; 46: © Photos.com, Thinkstock; 51: © Peter Visscher, Dorling Kindersley, Thinkstock; 53: © Natasha Chamberlain, Dorling Kindersley, Thinkstock.



804 N. 2nd Ave. E. Rock Rapids, IA 51246-1759

© MCMXCVIII by Alpha Omega Publications, Inc. All rights reserved. LIFEPAC is a registered trademark of Alpha Omega Publications, Inc.

All trademarks and/or service marks referenced in this material are the property of their respective owners. Alpha Omega Publications, Inc. makes no claim of ownership to any trademarks and/or service marks other than their own and their affiliates, and makes no claim of affiliation to any companies whose trademarks may be listed in this material, other than their own.

TROPICAL RAINFORESTS

In this LIFEPAC® you will learn about huge, warm forests on the earth where rain falls almost every day. You will discover what these forests are like. You will also learn about the animals and people who live there. You will learn how the things that grow in the forests are used today and why the forests are getting smaller.

Objectives

Read these objectives. The objectives tell you what you will be able to do when you have successfully completed this LIFEPAC. Each section will list according to the numbers below what objectives will be met in that section. When you have finished this LIFEPAC, you should be able to:

- 1. Describe rainforests and tell where they are located.
- 2. Name some of the products of the rainforest.
- 3. Identify some of the rainforest plants and animals.
- 4. Explain the history of the Amazon and Congo rainforests.
- 5. Describe the Congo and Amazon Rivers.
- 6. Tell of the changes being made in the rainforest.
- 7. Describe how people live in the rainforest.

1. RAINFORESTS OF THE WORLD

A rainforest is also known as a jungle. It is a thick forest that grows in the region known as the tropics. These forests are very warm and get lots of rain. Many, many, many kinds of plants, animals, and insects live in rainforests. You will learn about only a few of them.

Objectives

Review these objectives. When you have completed this section, you should be able to:

- 1. Describe rainforests and tell where they are located.
- 2. Name some of the products of the rainforest.
- 3. Identify some of the rainforest plants and animals.
- 6. Tell of the changes being made in the rainforest.
- 7. Describe how people live in the rainforest.

Vocabulary

Study these new words. Learning the meanings of these words is a good study habit and will improve your understanding of this LIFEPAC.

abundant (ə bun' dənt). More than enough; very plentiful.

balsa (bôl' sə). A tree with very lightweight wood.

basin (bā' sən). The land area drained by a river and the streams that flow into the river. **classify** (klas' i fī). To arrange in groups or classes.

hothouse (hot' hous). A building with a glass roof and sides, kept warm for growing plants.

humid (hyü' mid). Damp or moist air.

Latin America (Lat' n ə mer' ə ka). South America, Central America Mexico, and most of the West Indies.

mahogany (mə hog' ə nē). A tropical tree that has dark reddish-brown wood. It polishes very well and is used to make furniture.

nutrient (nü' trē ənt). Any substance that is needed by living things for energy, growth, and repair of injuries.

salamander (sal' ə man dər).). An animal shaped like a lizard, but belonging to the same group as frogs and toads.

settler (set' ler). A person who goes to live in a new country or area.

species (spē' shēz). A group of related living things that have certain important parts or features in common.

steward (stü' ərd). A person who takes care of or manages the property of someone else. (The earth belongs to God and we take care of it for Him).

teak (tēk). A tall tropical tree with hard, heavy, durable wood used for furniture and shipbuilding.

temperate zone (tem' pər it zōn). Area of the earth in between the hot tropics and the cold arctic. Most of the USA is in the temperate zone.

tropics (trop' iks). Regions near the equator, between the Tropic of Cancer and the Tropic of Capricorn.

Note: All vocabulary words in this LIFEPAC appear in **boldface** print the first time they are used. If you are unsure of the meaning when you are reading, study the definitions given.

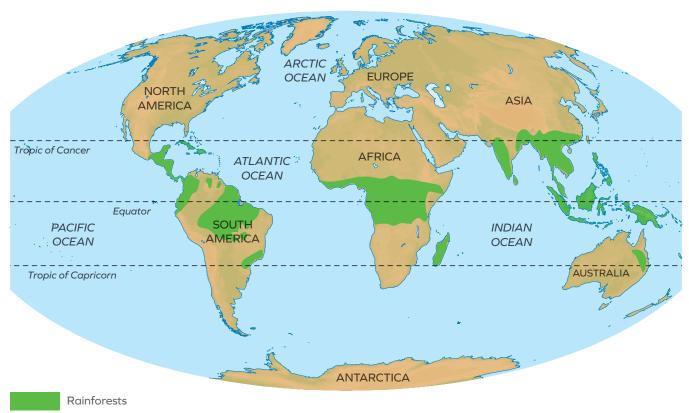
Pronunciation Key: hat, āge, cãre, fär; let, ēqual, term; it, īce; hot, ōpen, ôrder; oil; out; cup, put, rüle; child; long; thin; /TH/ for then; /zh/ for measure; /u/ or /ə/ represents /a/ in about, /e/ in taken, /i/ in pencil, /o/ in lemon, and /u/ in circus.

Facts about Rainforests

A rainforest, or jungle, can only grow when the temperature and the rainfall are just right. The temperature must be around 80° all year. It can not get much hotter or cooler than that. The forest has to get at least 80 inches of rain in a year, and that rain must fall regularly all year. Some rainforests get 200-300 inches of rain in a year! (Remember, deserts get only 10 inches or less in a year). This makes the forest very green with many kinds of life in it.

Rainforests usually grow near the equator. That is the best place to find the hot temperatures and regular rainfall needed for a rainforest. The area around the equator between the Tropic of Cancer and the Tropic of Capricorn is where most rainforests grow. This is called the tropics, and the jungles there are often called tropical rainforests.

Cold arctic air cannot hold much moisture, but the hot air of the tropics can carry large amounts of water. Rainforests occur all along the equator when the rain is not blocked by mountains or cooler air.



| Major Rainforests of the World. This map is also for questions 1.1 to 1.4.

There are three main areas of tropical rainforest in the world. They are in **Latin America**, Africa, and Southeast Asia. Each area has animals and plants that the others do not have. But, the types of plants and animals are very much alike in all of the rainforests.

Latin America has more rainforests than the other regions. The rainforest that covers the **basin** of the Amazon River in Brazil, South America is the largest in the world. It covers one-third of South America. Other rainforests also cover much of Central America and strips along the east coast of South America.

The second largest total area of rainforest is in southern Asia. It covers mainly the peninsulas of southeast Asia and the islands heading south to Australia. The countries of that region, Indonesia, Malaysia, Thailand, the Philippines, Vietnam, Kampuchea, and Myanmar are mostly rainforest.

The last area of rainforest is in Africa. It covers the center of the continent around the equator and includes a part of the large island of Madagascar on Africa's east coast. The largest rainforest of Africa is in the Congo River Basin, mostly in the country of the Democratic Republic of the Congo.



Map exercises.

- 1.1 Using a pencil, lightly shade in the area on the map called the tropics.
- **1.2** Put a box around the largest region of rainforest in the world.
- **1.3** Circle the rainforests of Southeast Asia.
- **1.4** Put an "X" on the island of Madagascar.



Complete these sentences.

The three regions of rainforest are in,
, and
The largest rainforest in the world is in the basin of the
·
Rainforests usually arow near the

TROPICAL RAINFORESTS | Unit 5

.8	Rainforests need		temperatures and
		rainfall.	
.9	A rainforest gets at least		_ inches of rain in a year.

Rainforests are like huge **hothouses**. Thousands of different kinds of plants live there. A small part of a rainforest that covers 2½ acres may have over a hundred different kinds of trees! That is unusual because the same size piece of forest which is in the United States, in the **temperate zone**, may have at most seven kinds of trees.

The rainforest is always green. Some trees do lose their leaves for a short time, but the forest never becomes bare like a temperate forest in the winter. It never gets cold enough to kill off insects or plants, as it does in the temperate and arctic regions. There are flowers blooming and fruit ripening year round in the rainforests. That means there is always a good supply of food for animals. A constant supply of many kinds of food means that many kinds of animals can live in the rainforest.

About half of all of the different kinds, or species, of plants and animals in the entire world live in the rainforests. Many of the plants, animals, and insects do not even have names. They have never been classified by a scientist.

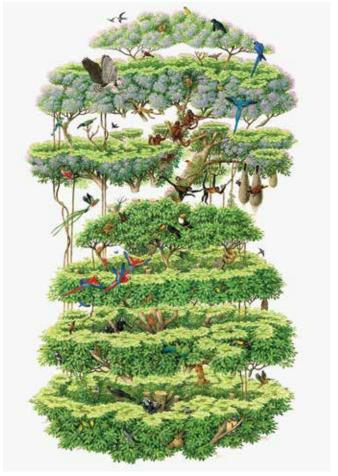
When a scientist finds a new animal or plant, he classifies it by deciding what group, or class, it is similar to. Then, he gives it a name in Latin, which is the language of scientific names. Like an explorer who finds new land, he can give it any name he wants. Often newly-found animals or plants are named after the person who classified them. Scientists are always finding new species in the rainforests.

Rainforests are very complicated places. Scientists think of the rainforest in three layers. The top layer is the *canopy*. The canopy is the tallest trees that grow to be 75-150 feet tall. Under the tall canopy is the understory. The understory is made up of smaller trees, vines, and shrubs. The bottom layer is the forest floor. This is made up of the small plants on the ground.

The canopy is like a huge green roof over the forest. The trees grow up thin and straight, like pillars. They do not put out branches until they are very tall. Then, they spread out like an umbrella in the sunlight. The trees are so close together that very little light or rain goes through to the lower layers.

Many kinds of monkeys, birds, and insects live in the canopy. These kinds of animals often never touch the ground in their entire life! All the food and water they need, they find among the tall trees. Because it rains all the time, water can be found in holes in the trees, leaves, and plants that grow on the trees. The animals eat the leaves and fruit of the trees, insects, or other animals.

The understory is usually a dark, **humid** place. There is very little light and no breeze because they are blocked out by the canopy. The plants under the canopy must be able to live with very little sunlight. Often they will only grow in open patches where a big tree has fallen down. Other plants, like vines, grow on the big trees. They get the **nutrients** they need from the tree, which is getting sunlight up in the canopy.



| Levels of the rainforest canopy

The floor of the rainforest is often very

open and easy to walk across. That is because so little light reaches the floor that very few plants can grow there. The movies are wrong in showing people cutting their way through the thick plants and vines in the jungle. That type of jungle is only found around rivers and clearings, where light can reach the forest floor.

People from Europe, who first explored rain forests, thought the soil there had to be very rich in nutrients because the forest is so green and thick. They expected to be able to grow many kinds of crops and trees if they cleared the land, but they were very wrong.

In fact, the soil in a rain forest is very poor. Things are lush and green only because they get a constant supply of nutrients from the plants and animals that die and fall to the forest floor. On the floor, many special plants and insects break up this natural "trash" and recycle it into the soil. There it is quickly absorbed by the plants and used again. Any nutrients that do get into the soil are washed away by all the rain. If the forest is cut down, the supply of new nutrients stops. The soil quickly runs out of nutrients and within a few years nothing will grow in it.

Some of the rain in a rain forest is also recycled. The trees put the water back into the air through small holes in their leaves. This makes the air more humid and causes it to rain again. That creates a steady supply of rain for the forest and the rivers that flow through it. As much as half the rain in the Amazon may come from the forest itself! In places where the forest has been cut down, less rain falls.



Match these items.

- **1.10** ____ canopy
- **1.11** _____ understory
- **1.12** _____ floor
- **1.13** nutrients
- **1.14** _____ classify

- a. putting something in a group with others like it
- b. top of the tallest rainforest trees
- c. ground level of the rainforest
- d. needed by living things to grow
- e. middle level of the rainforest



Complete these sentences.

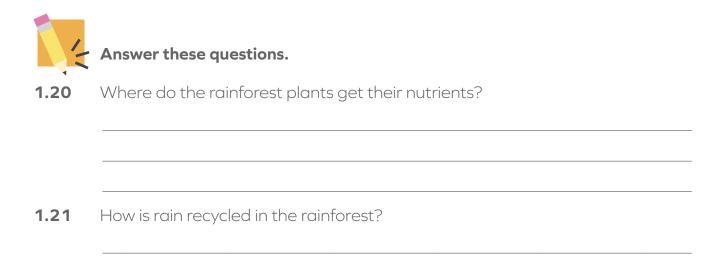
1.15 The soil in the rainforest is very		
---	--	--

1.16	Rainforests do not become bare like those in the	2

_____·

1.17	A rainforest has	kinds	of	plar	nts.
------	------------------	-------	----	------	------

- 1.18 About half of the ______ of animals in the world live in the rainforest.
- **1.19** Few plants can grow on the forest floor because very little ______ reaches there.



Plants and Animals

God created a huge variety of plants and animals to live in the rainforest. Many of them need each other to survive. All of them were specially made to live in the hot, wet forests.

The tall canopy trees must be able to reach the sunlight high in the air and still get nutrients from the thin soil on the forest floor. Their roots do not go deep into the soil because there is nothing there for the plants to reach. Instead the roots spread out in all directions along or just under the ground. That way they can quickly make use of the nutrients from the recycled plants and animals that have fallen to the floor.

One type of plant in the rainforest does not even need soil. These plants are called *epiphytes*, or air plants. Air plants live on the branches of other trees in the canopy or understory, with their roots out in the air. In the humid rainforest, they collect water from the rain that falls on them. They get nutrients from the natural "trash" that falls around them or from insects that make nests in their roots! One kind of air plant is a beautiful flower called an orchid. There are thousands of different kinds of orchids in the rainforest!

Some air plants store water in pools in and around their roots. These pools become homes for frogs and **salamanders**. Frogs usually need to lay their eggs in ponds, but

some rainforest tree frogs lay their eggs in pools in the air plants. That way the frogs never have to go down to the ground.

Millions of kinds of insects live in the rainforest. It never gets cold enough to kill them. There are bees, butterflies, termites, beetles, and many kinds of flies. There are ants everywhere. One of the more interesting kinds of ants is the army ant. Army ants do not have nests. They march out in a line every day to hunt for other insects, which they eat. At night they hook themselves together to form a living nest around their queen and larvae, (lar' ve) or baby ants.

Snakes live in the trees and on the forest floor. They eat frogs, eggs, birds, insects, and small animals. Some of the snakes, like the fer de lance of Latin America, are poisonous, but others are not. One especially large non-poisonous snake is the anaconda of South America. It is one of the largest snakes in the world. A full-grown anaconda can be 30 feet long. The anaconda kills its prey by wrapping itself around the animal and squeezing it until it can not breathe. Then the snake swallows the prey whole. If the animal is big enough, the snake may not eat again for weeks!

Monkeys are a very common animal in the rainforest. Most live all of their lives up in the canopy and the understory. God designed them to live among the trees. They have long arms to swing from branch to branch. Some can use their tails to hold onto the trees while they eat. They are very fast and agile (aj el), jumping easily from tree to tree as they search for food. Different monkeys eat different things. They can eat leaves, fruit, insects, eggs, nuts, flowers, roots, and frogs. Their hoots and howls are heard throughout the rainforest, even when they can not be seen among the trees.



| Red-eyed Tree Frog



| Blood Python



| Chimpanzee

Many colorful birds also live among the canopy of the rainforest. The most unusual are the Birds of Paradise from the forests of New Guinea and Australia. These birds are named for the unbelievably beautiful feathers on the male. The colors of their feathers vary from bright reds, to greens and blues. They often have long, unusual tail feathers that they display in a manner similar to a peacock. These birds were hunted for years for their feathers and are more difficult to find now.

There are also animals that live on the forest floor. The tapir is a forest animal that looks like a large pig. It is actually in the same animal family as the horse and the rhinoceros. They live in South American and Asian rainforests, eating leaves, twigs, and fruit.

Tapirs are only one of the animals hunted by the big cats of the rainforest. Jaguars,



| Bird of Paradise

leopards, and tigers are the largest predators of the rainforest. All of these cats have beautiful fur coats that have made them desired by hunters for years. The spotted coats of the jaguar and leopard were especially popular for fur coats. Today most countries are trying to protect their big cats, but many are still hunted illegally.

These are only a very few of the animals and plants of the rainforest. The most important thing to remember is that there are so many different kinds of life there. You could study antelope, marmosets, parrots, moths, spiders, flowers, vines, or lizards and find dozens of kinds in the rainforest. The rainforest is where the plants and animals are the most abundant.



| A Tapir



Match these items.

1.22	 air plants
1.23	 monkeys
1.24	 anaconda
1.25	 army ants
1.26	 Birds of Paradise
1.27	 tapir
1.28	 jaguar
1.29	 tree frogs
1.30	 canopy trees

- a. killed for their beautiful feathers
- b. lay their eggs in pools in the canopy plants
- c. form a living nest each night
- d. related to the horse and rhinoceros
- e. roots spread out along the ground
- f. large predator, hunted for fur
- g. fast, agile, live in the trees
- h. live on the branches of trees, get nutrients from the air and rain
- i. large snake, coils around its prey

People and the Rainforest

Traditional life. There are many tribes of people who have lived in the rainforests for thousands of years. These forest dwellers usually belong to one of two groups. They are usually hunter/gatherers or slash-and-burn farmers.

Hunter/gatherers live as they do in every other region of the world. They kill animals and gather what the forest provides for part of their food. Unlike in the Arctic, tools are always available. Unlike in the desert, water is always available. The people do not need clothes to protect them from the



| Brazilian Indians

weather. The forest even provides a way to make hunting easier. Many of the people hunt with poisoned arrows. The poisons come from the plants of the forest. That makes the animals easier to kill.

However, most of the forest people raise crops in small clearings as well as hunting and gathering in the forest. This provides them with food year-round. They start by cutting (slashing) down the trees and the other plants in an area. They let the dead plants dry out, then they burn them. The ash from the burned plants goes into the soil and makes it fertile for a little while. This is called slash-and-burn farming.

The small clearings grow food crops for a few years, then the family or group moves on and clears a new field. The old field is left to be over-grown by the forest. In a few years, it once again looks like the rainforest that surrounds it.

This type of farming does not harm the rainforest when only a few people are doing it. The small clearings become rainforest again without any damage. The land is used and recycled for use again some other time. The rainforest easily regrows to fill in the clearings after the people leave. That is changing today. Today, the rainforests are getting smaller because too many people are burning them.



Complete the following.

or	·
Many of the forest people hunt with	arrows.
The soil in a clearing is made fertile bydead plants.	the
After a clearing would no longer grow crops, it was le	eft and soon became

Rainforests in danger. There is a great deal of talk about the destruction of the rainforests today. It is a popular subject and a fad. That means, many people are writing, talking, and arguing about protecting the rainforests. Many of these people will find some new subject to get excited about when they get tired of rainforests, but people who love God should take care of the earth He gave us. We need to be good **stewards**. There are some serious problems concerning the rainforests that need to be fixed.

Rainforests are being cut down too quickly. Every year an area about the size of West Virginia is being destroyed. We will look at how this is happening and why it may be a problem for everyone.

Rainforests are so large and thick that for many years very few people lived or went there. Today, however, that is changing. Millions of poor, often hungry, people live near the rainforests of the world. These people are desperate for a better life, and they think they can find it in the forests.

Settlers can get into the rainforests because modern machines have opened roads deep into the jungle. The roads are



| Bulldozing roads into the forest

usually built by businesses who want to cut down trees or dig up minerals in the forest. Governments build other roads for trade and to allow settlers into the forest. Poor people come into the forest by the thousands on the roads and take land to raise food. They burn off the trees and plants to make a field. Then they plant crops for food and to sell. All around them other farmers do the same, so there is no forest left to grow back.

The new farms can only grow crops for a few years in the poor soil. The farmers then sell the land to a cattle rancher or just leave and clear a new piece of land. The soil is so poor that it will not even grow grass to feed cattle for more than a few more years. By then, the ground is hard packed and grows only a few weeds. The rainforest is destroyed and nothing can be done with the land.

Obviously, if this continues long enough, the forests will be destroyed and the farmers will have no place to move. Then those people will starve, because there will be no land left where they can grow food. Forcing them to stop cutting down the forest will not help, because they would just starve now instead of later. New ways need to be found for

these people to live on the rainforest land without destroying it.

Also, no one knows how destroying the rainforests will change the earth. We know that less rain will fall once the trees are gone. That may cause some rivers, which supply water to cities around the rainforest, to dry up during part of the year. Also, burning trees puts *carbon* into the air. Carbon absorbs heat from the sun. Will the burning of so many trees change the air and make the climate on the earth warmer? Experts are arguing about it, but it might be happening.

The rainforests are also the source of many things that are useful to human beings. As many as one out of every four drugs bought at the store were discovered in a rainforest. Coffee, chocolate, bananas, corn, tea, sweet potatoes, Brazil nuts, rubber, and tapioca all came from the rainforest. Very valuable wood is taken from the trees of the rainforest. **Mahogany**, **teak**, and **balsa** wood come from there. Those trees can not be grown without the thick, wet, warm rainforests. Thus, the loss of the rainforests would hurt other people besides those that must live there.

God put people in charge of the earth. It is our job to use it wisely. Perhaps you will one day work to restore rainforests after they have been destroyed. You may even find new ways to feed the hungry people who are burning the forests. God has given us minds to find solutions to our problems with His help.



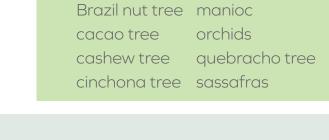
Answer these questions.

How do s	settlers get into the rainforest?
What do	the settlers do when their fields will not grow crops any more?

TROPICAL RAINFORESTS | Unit 5

1.38	What two things might happen to the earth if the rainforests are burned?		
	a		
	b		
1.39	Name six things we get from the rai	nforest	
-	Do this activity.		
1.40	Look over this list of rainforest plant and look up information about it. M to go with your report.		
	Animals		Plants

Animals	
anteater	macaw
coati	manatee
flamingo	toucan
iguana	vampire bat
jaguar	sloth



curare

balsa wood

Teacher check:	
Initials	Date



Review the material in this section to prepare for the Self Test. The Self Test will check your understanding of this section. Any items you miss on this test will show you what areas you will need to restudy in order to prepare for the unit test.

SELF TEST 1

Match	the following	g (3 points each answer).				
1.01		monkey	a.	catch their water and nutrients		
1.02		army ants		from the air		
1.03		tapir	b.	large snake		
1.04		tree frog	C.	looks like a large pig		
1.05		anaconda	d.	beautifully colored feathers		
1.06		Birds of Paradise	е.	tall, straight, pillar-like trunks		
1.07		orchids	f.	grow on trees and get nutrients from them		
1.08		canopy trees	C	always blooming and ripening		
1.09		vines		, , , , , , , , , , , , , , , , , , , ,		
1.010		flowers and fruit		make nests out of their bodies		
			i.	agile, lives in the trees		
			j.	lay eggs in pools in the canopy		
Answei	r these quest	tions				
1.011	What two t	things must happen for a rain	fores	t to grow? (4 points)		
	a					
	b					
1.012	What are the three regions of rainforest in the world? (6 points)					
	a					
	b					
	C					
1.013	The soil of the rainforest gets nutrients from: (4 points)					

1.014	The people of the rain forest traditionally are either: (4 points)							
	a b How do farmers make the rainforest soil fertile for a short period of time? (4 points)							
1.015								
Choose	the correc	ct word from the li	st below (3 points e	each answer).				
equa ⁻	oy tor ranches	species	floor mahogany	tropics roads				
1.016			est, the area of smo	all trees, vines, and shr	ubs, is			
1.017	As many as one out of four from the store came from the rainforest.				tore came			
1.018			e found near the ma	ap line called the				
1.019	The region between the Tropics of Cancer and Capricorn is called the							
1.020	The highest level of the rainforest, the tree tops, is called the							
1.021		ılf of all of the	of plants and animals can be					
	found in the rainforests.							
1.022	After the land cleared in the rainforest is no longer good for crops, it is often used for for a time.							
1.023	The botto	om level of the rain	forest is the		·			
1.024	Settlers get into the rainforest using built							
	by busine	by businesses and governments.						

1.025		is a valuable wood grown in the
	rainforest.	
Write <i>ti</i>	rue or false i	n the blank (2 points each answer).
1.026		Every year an area of rainforest about the size of Europe is destroyed.
1.027		Coffee, bananas, rubber, and tea come from the rainforests.
1.028		Burning the rainforests might be making the earth warmer.
1.029		The largest rainforest in the world is on the island of Madagascar.
1.030		A forest in the temperate region will have more kinds of plants than a tropical rainforest.
1.031		Trees in the rainforest give off moisture that is recycled and comes down again as rain.
1.032		Many of the people of the rainforest hunt with poisoned arrows.
1.033		After the rainforest has been burned, the land can be used for coffee and banana farms for many, many years.
1.034		There is a large rainforest on the north side of Europe.

Teacher check:	Initials	80
Score	Date	100





804 N. 2nd Ave. E. Rock Rapids, IA 51246-1759

800-622-3070 www.aop.com

