

## Where Are the Rainforests?

The warmest parts of the earth are called the tropics. Rainforests are found in the tropics close to the equator, an imaginary line of latitude around the middle of the earth where the weather is the hottest and days and nights are equal at twelve hours each. The tropics extend north from the equator to the line of latitude called the Tropic of Cancer and an equal distance south to the line of latitude called the Tropic of Capricorn. All tropical rainforests occur in this area of the earth.



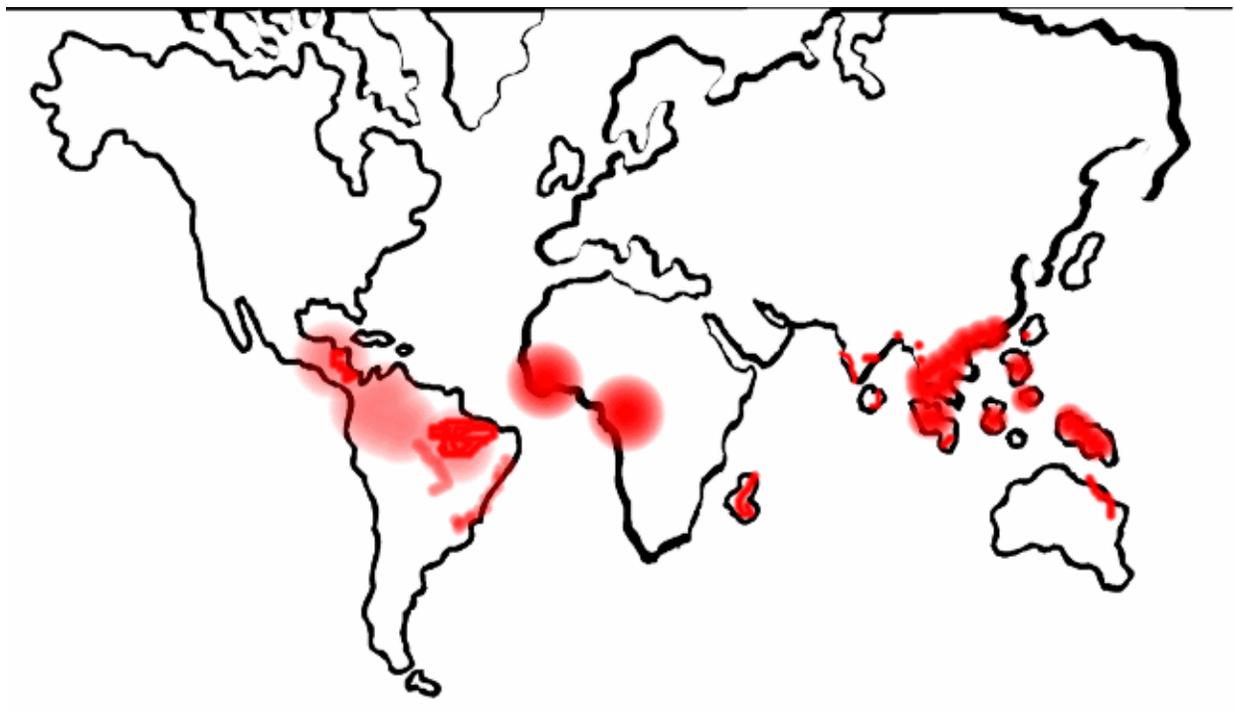
The largest rainforest is found on the South American continent along the Amazon River. The Amazon River is the second longest river in the world. The Amazon rainforest contains the greatest diversity of plant and animal life on earth. About 20 percent of the world's plant species grow in the Amazon rainforest.

Central Africa is home to the second largest rainforest. This huge rainforest sits right on the equator and is the jungle ecosystem Americans picture when they think of wild Africa. Parts of the island of Madagascar off the western coast of Africa are tropical rainforest. Madagascar has species of animals not found anywhere else.

All of Central America contains tropical rainforest. The Central American rainforest is known for having colorful bird and butterfly species. American tourists enjoy visiting countries like Belize and Costa Rica in order

to experience the rainforest with its unique plants, insects, birds and animals.

The islands of Southeast Asia are in the Indian and Pacific Oceans along the equator. Southeast Asia is always hot and humid and all of these islands are covered with tropical rainforests and jungles. The east coast of Australia plus the islands of New Zealand and New Guinea contain rainforests with unique species of plants and animals. Overall about 6 percent of the earth is covered by rainforests.



Name: \_\_\_\_\_ Date: \_\_\_\_\_

## Where Are the Rainforests?

**Multiple Choice Questions** - Circle the correct answer.

- Lines of latitude important in locating tropical rainforests include the
  - Equator
  - Tropic of Cancer
  - Tropic of Capricorn
  - All of the above
- The largest rainforest on earth is on the continent of
  - North America
  - South America
  - Africa
  - Australia
- The largest rainforest on earth is in the basin of the
  - Amazon River
  - Mississippi River
  - Nile River
  - None of the above
- Rainforests exist on an island off the east coast of Africa called
  - New Zealand
  - New Guinea
  - Madagascar
  - None of the above
- A country in Central America known for rainforest tourism is
  - Belize
  - Costa Rica
  - Both a. and b. above
  - None of the above
- About how much of the earth is covered by rainforests?
  - 6%
  - 10%
  - 15%
  - 20%

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### Where Are the Rainforests? - Short Answer Questions

1. Draw a circle to represent the earth. Draw the lines of latitude that show where tropical rainforests can exist.
2. Describe the weather conditions that occur at the equator.
3. Botanists, scientists who study plants, estimate that they know 400,000 plant species. Based on this reading, about how many of these species grow in the Amazon rainforest?
4. Gorillas live in the rainforests of Central Africa. Do some research and write a short report about the habits of gorillas.
5. Do some research about tourist destinations in Belize. Select the destination you like the best and describe what you would like to see there.
6. Nearly 900 bird species have been found in Costa Rica. Using the Internet, make a notebook or poster of pictures of Costa Rican birds and their names.
7. Which tropical rainforest area in the world would you like to visit and why?

# Where in the World?

Highlight the portion of the world map where the largest rainforests are located.



Highlight where you are currently located on the map.



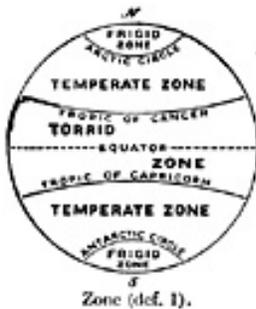
## Where Are the Rainforests? - Answer Key

### Multiple Choice

1. d.
2. b.
3. a.
4. c.
5. c.
6. a.

### Short Answer

1. Tropic of Cancer, Tropic of Capricorn and equator are required.



2. The weather at the equator is the hottest on earth and days and nights are equal at twelve hours each.
3. About 20 percent of the world's plant species grow in the Amazon rainforest.

$$400,000 * 20\% = 400,000 * 0.20 = 80,000$$

4. Individual response
5. Individual response
6. Individual response
7. Individual response

## Animals of the Tropical Rainforests

Tropical rainforests exist on the continents of Africa, South America and Australia. More tropical rainforests can be found on the islands of Southeast Asia and throughout Central America. You already know that diverse (different) animal species live in different parts of the world and the same is true for rainforest animals. The tropical rainforests across the globe are frequently home to unique animal species that can't be found anywhere else on earth.



Animals that live in the rainforest must adapt to life in this special ecosystem. In order to be called a rainforest an area must get at least 80 inches of rainfall a year. While a polar bear grows a coat with hollow fur that insulates well against the cold, a mammal that lives in the rainforest needs a sleek fur coat that repels water and sturdy feet capable of walking through mud.

Tropical rainforests exist on or near the equator where the temperature is hot all year long. Rainforests are an ideal location for cold-blooded reptiles. Cold-blooded is a term that means that reptiles cannot warm themselves in a cold outside temperature. Rainforest reptiles include

some of the largest snakes in the world like the anaconda, lizards, caimans, crocodiles, alligators and turtles.

Amphibians like frogs, salamanders, and toads are also cold blooded and thrive in the rainforest. Both reptiles and amphibians and some mammals will eat many of the species of insects and spiders that inhabit the rainforest.

There are thousands of species of unique birds that live in the rainforest. Rainforest birds like the parrot and toucan are usually very colorful. These birds not only have bright colors but many tropical birds are decorated with several brilliant colors on their feathers, feet and beak.

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## Animals of the Tropical Rainforests

### Multiple Choice Questions

Circle the correct answer.

1. Which of these continents has tropical rainforests?
  - a. Antarctica
  - b. Europe
  - c. Africa
  - d. All of the above
  
2. In order to be called a rainforest how much rain is needed per year?
  - a. 10 inches
  - b. 30 inches
  - c. 80 inches
  - d. 100 inches
  
3. A mammal that lives in the rainforest needs
  - a. To be cold-blooded
  - b. A coat that repels water
  - c. A long tongue for catching insects
  - d. None of the above
  
4. Tropical rainforests exist on or near
  - a. The equator
  - b. Mountains
  - c. An ocean
  - d. None of the above
  
5. Examples of reptiles include
  - a. Snakes
  - b. Turtles
  - c. Lizards
  - d. All of the above
  
6. Salamanders are
  - a. Birds
  - b. Amphibians
  - c. Reptiles
  - d. Insects

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### Animals of the Tropical Rainforests - Short Answer Questions

1. Describe where tropical rainforests can be found.
2. Do the same animals live in the tropical rainforests of Africa and South America? Explain your answer.
3. When is a forest area considered to be a rainforest?
4. Look up the amount of annual rainfall that occurs in your state or area of the state. Calculate the ratio of your rainfall to the rainfall of a rainforest.
5. Explain why the tropical rainforest is a good ecosystem for reptiles and amphibians.
6. The bongo is an antelope species that lives in the African rainforest. Do some research and write a report about the bongo.



7. Select a rainforest animal that interests you. Find a picture of this animal.  
Show it to the class and explain why this animal interests you.

## Animals of the Tropical Rainforests Answer Key

### Multiple Choice

1. c.
2. c.
3. b.
4. a.
5. d.
6. b.

### Short Answer

1. Tropical rainforests exist on the continents of Africa, South America and Australia. More tropical rainforests can be found on the islands of Southeast Asia and throughout Central America. Tropical rainforests exist on or near the equator.
2. Diverse animal species live in different parts of the world and the same is true for rainforest animals. The tropical rainforests across the globe are frequently home to unique animal species that can't be found anywhere else on earth.
3. In order to be called a rainforest an area must get 80 inches of rainfall a year.
4. Individual response – ratio is annual rainfall in inches : 80 inches
5. Tropical rainforests exist on or near the equator where the temperature is hot all year long. Rainforests are an ideal location for reptiles and amphibians because these creatures are cold-blooded. Cold-blooded is a term that means that reptiles and amphibians cannot warm themselves in a cold outside temperature.
6. Individual response
7. Individual response

## Plants of the Tropical Rainforests

The name itself should immediately tell you what type of plants are found the most in the rainforest ecosystem. There's an old saying, "You can't see the forest for the *trees!*" While there are thousands of species of



flowering plants, vines, mosses, ferns and lichens in the rainforest, dense stands of trees dominate the landscape. Rainforest trees grow extremely tall; the tallest rainforest trees tower above everything else and form the emergent layer of the rainforest. These trees can grow 200 feet

tall. Tropical rainforest trees don't drop their leaves in the fall.

Other tree species in the rainforest don't grow as tall; these trees form the rainforest canopy which shades the forest and keeps the humidity from evaporating. Trees in the tropical rainforest have smooth bark and tall trunks. The tree branches don't emerge until high on the tree to be closer to the sun. These tall straight trunks make rainforest trees valuable as lumber. Much of the world's rainforest has already been destroyed by logging the timber.

There are thousands of species of flowering plants and shrubs in the tropical rainforest. These plants grow in dense shade on the rainforest floor in hot, humid conditions. Most plants have large leaves to capture as much

sunlight as possible. Large leaves act like umbrellas to shed water from the huge amounts of rain. Some plants have oily leaves that help them repel water.

More than two-thirds of the world's plant species are found in the tropical rainforests. Native people who have lived in the rainforest for centuries learned what plants could be used for medicine. The plants in the rainforest are a marvelous source for research scientists who are looking to cure diseases.

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## Plants of the Tropical Rainforests

**Multiple Choice Questions** - Circle the correct answer.

1. What type of plant dominates the rainforest?
  - a. Vines
  - b. Flowering plants
  - c. Trees
  - d. Mosses
  
2. The tallest trees in the rainforest
  - a. Form the emergent layer
  - b. Can be 200 feet tall
  - c. Grow above the canopy trees
  - d. All of the above
  
3. Rainforest trees usually have
  - a. Smooth bark
  - b. Rough bark
  - c. Low-growing branches
  - d. Twisted trunks
  
4. Much of the world's rainforest has been destroyed due to
  - a. Wildfires
  - b. Earthquakes
  - c. Logging
  - d. Mining
  
5. Tropical rainforest plants generally have
  - a. Deep roots to get moisture from the soil
  - b. Large leaves to capture sunlight
  - c. Small leaves to repel rain
  - d. Red flowers to attract birds
  
6. Approximately how many of the worlds plant species are found in the rainforest?
  - a. One-quarter
  - b. One-half
  - c. Two-thirds
  - d. Three-quarters

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## Plants of the Tropical Rainforests

### Short Answer Questions

1. Compare the rainforest trees in the emergent layer to the trees that form the canopy.
2. Why do you think tropical rainforest trees don't drop their leaves in the fall?
3. The temperate rainforest in Oregon and Washington State has conifers like the Douglas fir. Do some research and write a short report about the fir trees in the U.S. rainforest and their characteristics.
4. The strangler fig is a unique plant of the tropical rainforest and other warm climates. Do some research and explain why this fig plant that nourishes monkeys and other animals of the rainforest is called a strangler.
5. Draw a pie graph that shows the relationship between the number of plant species in rainforests and all the plant species in the world.
6. Vanilla is a rainforest orchid plant that has been harvested for centuries. Do some research and write a short report about the characteristics of the vanilla plant.
7. Pineapple is a rainforest fruit. Find a recipe that uses either fresh or canned pineapple. Ask an adult to help you follow the recipe and bring a taste of the rainforest to your dining table.

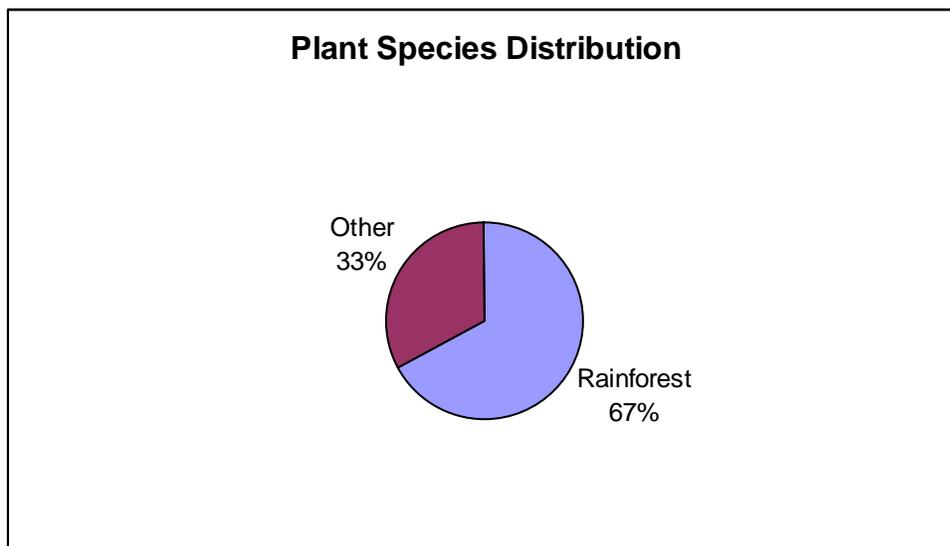
## Plants of the Tropical Rainforests Answer Key

### Multiple Choice

1. c.
2. d.
3. a.
4. c.
5. b.
6. c.

### Short Answer

1. The tallest rainforest trees tower above everything else and form the emergent layer of the rainforest. These trees can grow 200 feet tall. Other tree species in the rainforest don't grow as tall; these trees form the rainforest canopy which shades the forest and keeps the humidity from evaporating.
2. Trees in North America drop their leaves in fall due to the cold weather in order to survive the winter. It is always hot in the tropical rainforest. The tropical rainforest does not have seasons like North America does so the trees do not shed all their leaves at one time.
3. In order to be called a rainforest an area must get 160 inches of rainfall a year.
4. Individual response
- 5.



6. Individual response

7. Individual response

## People of the Tropical Rainforests

Rainforests cover about 6% of the earth's land and tropical rainforests exist in warm regions near the equator. Some of the places that tropical rainforests can be found are in South America, Central America, western Africa, and the islands of Indonesia off the coast of Southeast Asia. Many of the



tropical rainforest lands are remote and isolated. These remote areas can be home to native tribal people who still live like their ancestors did centuries ago. There are about 50,000,000 tribal people living in world's rainforests.

For example, pygmies, a group of tribes who live in Africa, are one of the most famous rainforest people because genetically they do not grow very tall. men usually grow to at most only 4 feet 11 inches tall. Pygmies live by their knowledge of rainforest plants and animals. Their lives are being destroyed as the rainforest that is their home is being changed by companies and governments.

The Yanomami people, another pygmy tribe, live in the Amazon rainforest, the largest rainforest in the world. There are only about 32,000 Yanomami people and they live in a protected portion of their original homeland that was set aside by the government of Brazil. The Huli people

are native people that live in Papua New Guinea, on the island of New Guinea, the second largest island in the world.

The country of Indonesia is made up of thousands of islands off the coast of Southeast Asia, an area known for having rainforests. Indonesia has 237 million people, the fourth largest population in the world. Sumatra, the sixth largest island in the world, is part of Indonesia and 45 million people live on Sumatra. There are over 200 mammal species and nearly 600 bird species on the island but about half of the rainforest land has been cleared since the 1980s.

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## People of the Tropical Rainforests

**Multiple Choice Questions** - Circle the correct answer.

1. Areas of the world that have tropical rainforests include
  - a. Indonesia
  - b. Brazil
  - c. New Guinea
  - d. All of the above
  
2. The pygmy people of Africa genetically
  - a. Still engage in hunting
  - b. Have blonde hair
  - c. Do not grow very tall
  - d. All of the above
  
3. The Yanomami people live in
  - a. Africa
  - b. New Guinea
  - c. Sumatra
  - d. South America
  
4. The second largest island in the world is
  - a. Sumatra
  - b. New Guinea
  - c. Madagascar
  - d. None of the above
  
5. The country of Indonesia is located near
  - a. Central America
  - b. Southeast Asia
  - c. South America
  - d. Western Africa
  
6. About how much of the earth is covered by rainforests?
  - a. 6%
  - b. 10%
  - c. 15%
  - d. 20%

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## People of the Tropical Rainforests

### Short Answer Questions

1. People usually think of a tropical rainforest as remote and having just a few human inhabitants. Do you agree with this idea? Explain your answer.
2. Explain who pygmies are and where they typically live.
3. When outsiders visit tribal people in the remote rainforest they expose the native people to new diseases. Native people do not have immunity to these diseases and can die from diseases that are not usually fatal. Write an editorial about this topic.
4. The Brazilian government has set aside land for the Yanomami people but miners from elsewhere are changing the rainforest in this area in search of minerals. Explain how you think this problem should be handled.
5. The Sumatran elephant is an endangered species. Do some research and write a report about this subspecies of elephant and how it can be a problem for villagers.
6. The Tropical Rainforest Heritage of Sumatra is a UNESCO World Heritage site. Do some research and explain what local people and their government need to do to make an area a UNESCO World Heritage site.
7. Would you like to spend time living with a rainforest tribe? Explain why or why not.

## People of the Tropical Rainforests Answer Key

### Multiple Choice

1. d.
2. c.
3. d.
4. a.
5. b.
6. a.

### Short Answer

1. Individual response
2. Pygmies are one of the most famous rainforest people because genetically they do not grow very tall. Pygmy men usually grow to at most only 4 feet 11 inches tall. Pygmies live by their knowledge of rainforest plants and animals. Pygmy tribes live in Africa and South America.
3. Individual response
4. Individual response
5. Individual response
6. Individual response
7. Individual response

## Threats to the Rainforests

Even though rainforests occupy just 6 percent of the earth's land, they contain much of the biodiversity on earth. Biodiversity means that there are lots of different plants and animals in an area or on earth. Rainforests are a unique ecosystem that allows for great biodiversity and the earth would lose over half of the species of plants and animals if the rainforests disappeared. Yet rainforest areas are being destroyed every day and they cannot be rebuilt. Once a species of plant or animal is destroyed, that is becomes extinct; it can never return.



Human beings are the ones who are destroying the rainforest. As the human population in tropical areas increases, people need more land for homes and farming so the local people clear the rainforest. Yet rainforest soil is poor in nutrients; the soil nutrients have washed away from centuries of heavy rain. So it is not a good plan to clear the rainforest in order to plant crops. Ranchers clear the land in order to graze cattle.

Rainforests are also being destroyed because timber companies want to harvest the trees. The tallest rainforest trees form the emergent layer and smaller trees make up the forest canopy which gives the rainforest a unique ecosystem. Logging in the rainforest must be done properly so that the rainforest environment is preserved. When the rainforest is preserved

properly, new trees will grow and replace harvested ones. This is called sustainable logging.

Mining is also a threat to the rainforest. Not only do mining companies tear up the land for mines, they clear areas for roads, buildings and housing for miners. The earth has already lost over half of its rainforests. Scientists estimate that the rainforests could disappear in 100 years at the current rate of destruction.

Name: \_\_\_\_\_ Date: \_\_\_\_\_

### Threats to the Rainforests - Multiple Choice Questions

Circle the correct answer.

1. The term for the different species of plants and animals that inhabit the entire earth is
  - a. Biology
  - b. Biodiversity
  - c. Biofuel
  - d. Biome
  
2. Once a species of plant or animal is destroyed it becomes
  - a. Extant
  - b. Extent
  - c. External
  - d. Extinct
  
3. Cleared rainforest land is not good for agriculture because
  - a. Many stumps need to be cleared
  - b. The land is very rocky
  - c. The soil is poor in nutrients
  - d. All of the above
  
4. Timber companies harm the rainforest because they destroy the
  - a. Rainforest floor
  - b. Understory layer
  - c. Emergent layer
  - d. None of the above
  
5. Threats to the rainforest include
  - a. Agriculture
  - b. Timber industry
  - c. Mining Industry
  - d. All of the above
  
6. At the current rate of destruction the rainforests could disappear in
  - a. 10 years
  - b. 100 years
  - c. 500 years
  - d. 1000 years

Name: \_\_\_\_\_

Date: \_\_\_\_\_

### Threats to the Rainforests - Short Answer Questions

1. Write an editorial about the threats to the rainforest that encourages people to care about the rainforest.
2. Rainforests used to cover 14% of the earth's land; now they cover 6% of the land due to rainforest destruction by human activity. Draw a bar graph that shows the "then and now" amount of rainforest land.
3. The Sumatran tiger is an endangered rainforest animal. Do some research and write a report about what is being done to preserve this tiger's habitat.
4. The rainforest looks lush, green and full of healthy plants. Explain why the rainforest has poor soil for crops when it grows such wonderful vegetation.
5. Explain what sustainable logging is.
6. Why is mining a threat to tropical rainforests?
7. Why should we care that the rainforests could disappear in a hundred years?

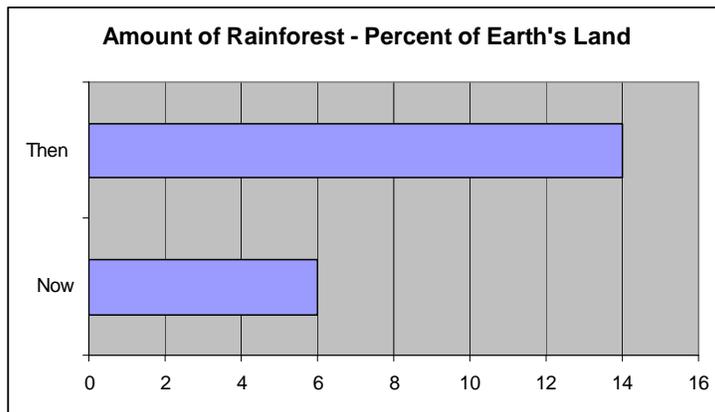
## Threats to the Rainforests - Answer Key

### Multiple Choice

1. b.
2. d.
3. c.
4. c.
5. d.
6. b.

### Short Answer

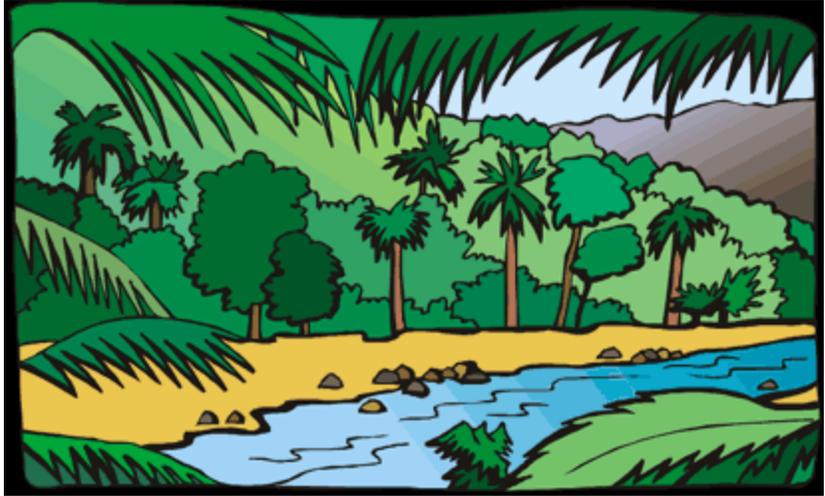
1. Individual response
- 2.



3. Individual response
4. Rainforest soil is poor in nutrients; the soil nutrients have washed away from centuries of heavy rain.
5. When the rainforest is preserved properly when it is logged, new trees will grow and replace harvested ones. This is called sustainable logging.
6. Mining is also a threat to the rainforest. Not only do mining companies tear up the land for mines, they clear areas for roads, buildings and housing for miners.
7. Individual response

## The Importance of the Rainforests

Scientists believe that tropical rainforests are the oldest and most complex ecosystems on earth. Forests in North America or Europe, for example, may have just 5 to 10 species of trees while the same amount of land in the tropical rainforest can have 300 species. Besides many species of trees, tropical



rainforests are home to unique animals and thousands of different plants, birds and insects. Biologists haven't even come close to discovering all the species in the tropical rainforests.

Tropical rainforests are important to the earth because they store over half of the earth's rainwater. The rainforest has a continuous cycle of rain and evaporation that circulates fresh water without it being stored in lakes or rivers. The rainforest also helps to process carbon dioxide. Destruction of the rainforest is linked with global warming.

Indigenous people, those people who are native to the rainforest, make their home there. Ancient groups of people not only lose their homes but also their culture when the rainforest is destroyed by businesses like logging or mining. Part of their native culture is a deep understanding of the

rainforest and how to interact with it. Modern scientists have a great curiosity about the plants in the rainforest but scientists who grew up in modern culture have no idea how to travel safely in the rainforest and do not understand which plants are important to humans.

Indigenous people know which plants to use for medicines. Already 25% of our modern medicines available at the drug store come from rainforest plants. One example is a plant from Madagascar is used to cure leukemia. Only the learned people in the indigenous tribes can guide us in our understanding of the rainforest.

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### The Importance of the Rainforests - Multiple Choice Questions

Circle the correct answer.

1. Scientists believe that tropical rainforests have so many species because they are
  - a. Young enough to have many active species
  - b. So old that many species have evolved
  - c. Close to the equator where there is more sun
  - d. Always getting enough water
  
2. Tropical rainforests contain thousands of unique species of
  - a. Plants
  - b. Birds
  - c. Insects
  - d. All of the above
  
3. Destruction of the rainforest is linked to
  - a. Global warming
  - b. Volcanic eruptions
  - c. Earthquakes
  - d. Hurricanes
  
4. People who have lived in the rainforest for centuries are called
  - a. Igneous
  - b. Indignant
  - c. Indigenous
  - d. Ingenious
  
5. How many modern medicines come from rainforest plants?
  - a. One-quarter
  - b. One-half
  - c. Two-thirds
  - d. Three-quarters
  
6. Who is best qualified to identify which tropical rainforest plants can be used as medicines?
  - a. Doctors
  - b. Scientists
  - c. Rainforest people
  - d. Researchers

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### **The Importance of the Rainforests - Short Answer Questions**

1. Why do you think there are so many species of trees, plants, animals, birds and insects in the tropical rainforests?
2. When a forest is logged out, many times it is clear-cut which means that all the trees and other plants are removed. Timber companies then plant seedlings of one species in the whole area that was logged. What you think about this method of reforesting an area?
3. Have a class discussion about how the indigenous people of the rainforest are like the Native Americans who lived in North America when the Europeans arrived.
4. Make a poster or a PowerPoint presentation about the ways that the rainforests are important to the rest of the world.
5. Quinine is one of the rainforest's most important plants. Do some research and describe why quinine is so important to humans.
6. Would you like to study tropical rainforest plants that might be suitable as drugs? Explain why or why not.
7. The indigenous people of the rainforest do not have written language. How do they know which plants can be used as medicine for a particular disease?

# Rainforest Research Key

Rainforests are home to many important plants and animals. Nearly half of all medicines that doctors prescribe originally came from plants and animals found in the rainforest.

The rainforest has also given us important products that humans depend on such as chocolate, soap, rope, gum, and tires.

Using the charts below research the plants and animals found in the rainforest. Describe 3 plants and 3 animals found in the rainforest that have a significant importance to humans.



## Animals

Name of animal	Where does it live?	Why is it important?
1.		
2.		
3.		

## Plants

Name of plant	Where does it grow?	Why is it important?
1.		
2.		
3.		

## The Importance of the Rainforests - Answer Key

### Multiple Choice

1. b.
2. d.
3. a.
4. c.
5. a.
6. c.

### Short Answer

1. Individual response but rainforests are an old ecosystem that has had more time to evolve lots of species.
2. Individual response
3. Class discussion
4. Individual response
5. Quinine is used in the treatment of malaria.
6. Individual response
7. Elders who serve as medicine people train the next generation by oral tradition.

## Preserving the Rainforests

While lots of people talk about the effects of destroying the rainforest,



many groups are working hard at efforts to save the rainforests. Not-for-profit foundations are groups of people who are interested in tackling social issues and these groups use the money they earn for their cause.

For example, if a group is working to preserve the rainforest and they sell coffee mugs with a picture of a tree frog, the money they earn goes to help the rainforest. Rainforest groups help governments and local people to preserve the rainforest instead of cutting it down.

It's easy to think that if the rainforest trees are cut down, the soil will be good for farming since it already grows lush tropical vegetation. But rainforest soil is very poor in nutrients because the rain has washed them all away. Instead, people who live in these areas can learn to grow native rainforest plants for sale to the rest of the world. Some important crops are cashew and Brazil nuts, vanilla, cocoa, and pineapples. Groups certify, that is guarantee, that the products with their label are grown in ways that preserve the rainforest. American shoppers can help with saving the rainforest when they buy certified rainforest products.

Timber companies are becoming more aware of preserving the rainforest. The best timber companies that sell mahogany wood also certify that it is being harvested in a sustainable way. Sustainable is another term for preserving the rainforest even though some of the trees are removed. Furniture companies and flooring manufacturers are now placing labels on their products to show that the rainforest is being preserved when the trees are cut.

Governments of countries that contain rainforests are setting aside more parks and wilderness areas. These countries are also promoting rainforest tourism.

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### Preserving the Rainforests - Multiple Choice Questions

Circle the correct answer.

1. What groups are helping to preserve the rainforest?
  - a. Not-for-profit foundations
  - b. Governments
  - c. Companies that use certified products
  - d. All of the above
  
2. Rainforest land is not suitable for farming because it
  - a. Lacks nutrients
  - b. Gets too much rain
  - c. Is too muddy
  - d. All of the above
  
3. Some important rainforest crops are
  - a. Cashew and Brazil nuts
  - b. Vanilla
  - c. Pineapple
  - d. All of the above
  
4. Another term that means the rainforest is being managed properly is
  - a. Sustenance
  - b. Sustainable
  - c. Subsistence
  - d. None of the above
  
5. Governments participate in preserving the rainforest by
  - a. Setting aside rainforest as park and wilderness area
  - b. Promoting rainforest tourism
  - c. Both a. and b. above
  - d. None of the above
  
6. American shoppers can help preserve the rainforest by buying
  - a. Products from foundations for preserving the rainforest
  - b. Rainforest products that are certified
  - c. Both a. and b. above
  - d. None of the above

Name: \_\_\_\_\_

Date: \_\_\_\_\_

### Preserving the Rainforests - Short Answer Questions

1. Explain what a not-for-profit group is. Name some not-for-profit groups in your community.
2. Use an Internet search engine with a search on a phrase similar to "preserve the rainforest" and locate information about groups that are working to preserve the rainforest. Read about the programs they are supporting and give a report to your class.
3. Would you be willing to help a group that is supporting the rainforest? Explain why or why not.
4. The Forest Stewardship Council is working towards proper management of forests. Do some research about this organization and write a report about how they are working to preserve the rainforest.
5. Explain what sustainable logging means.
6. Hardwood floors are very popular for homes. Do some research and write a report about what flooring companies in the United States are doing to help preserve the forests.

Explain how rainforest tourism helps to preserve the rainforest.

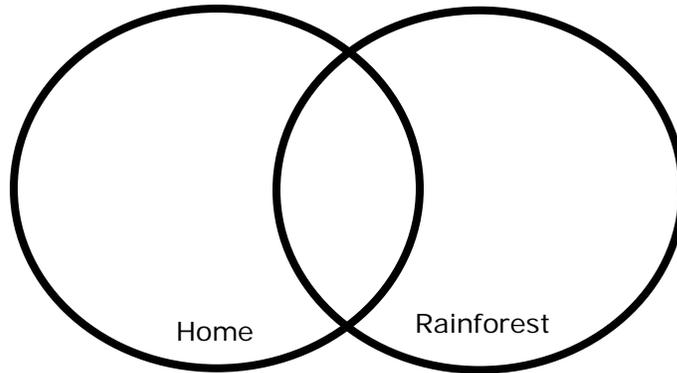
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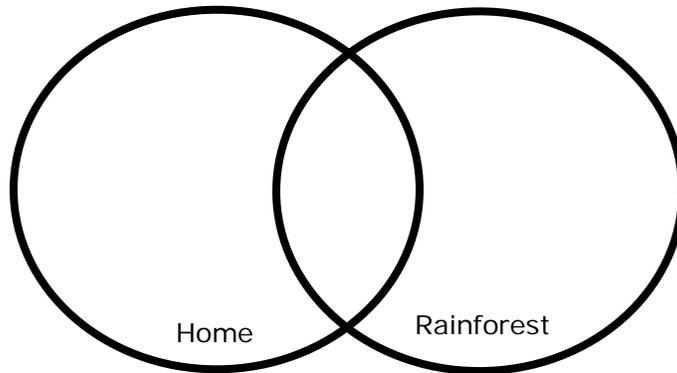


Where you live and a rainforest.

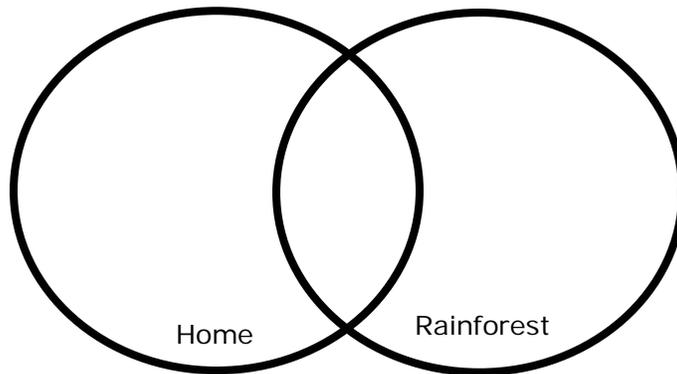
**Animals**



**Plants**



**Weather**



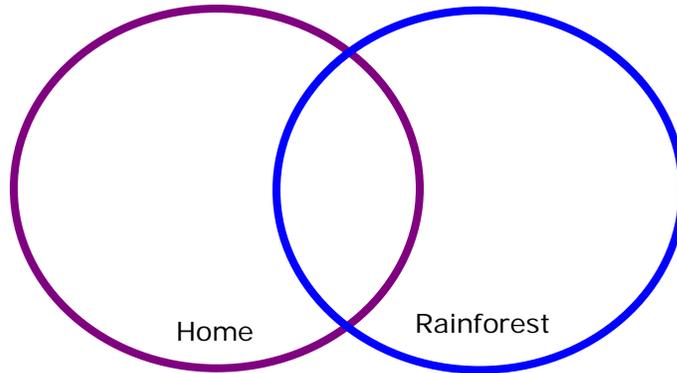
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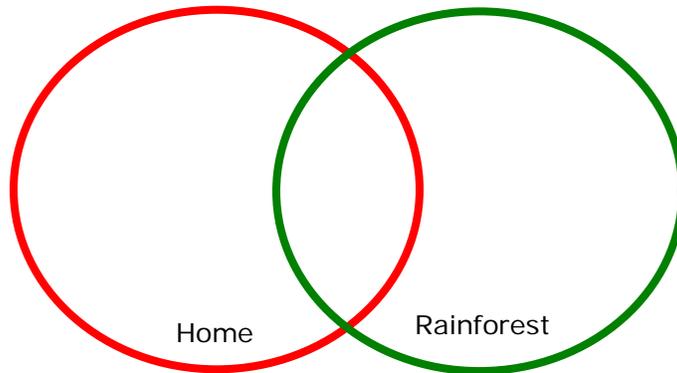


Where you live and a rainforest.

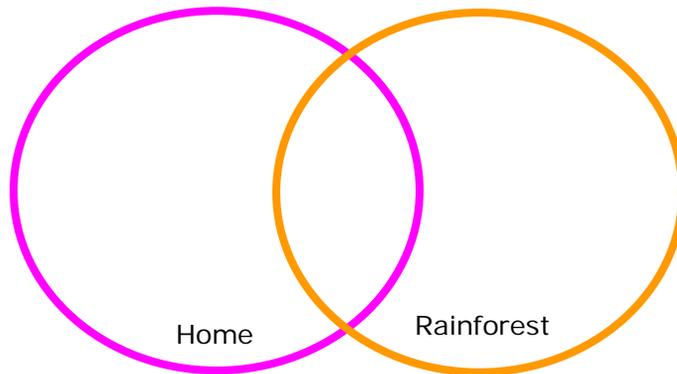
**Animals**



**Plants**



**Weather**



## Preserving the Rainforests - Answer Key

### Multiple Choice

1. d.
2. a.
3. d.
4. b.
5. c.
6. c.

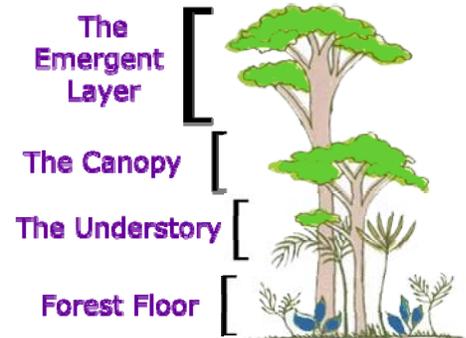
### Short Answer

1. Not-for-profit foundations are groups of people who are interested in tackling social issues and these groups use all the money they earn for their cause.
2. Individual response
3. Individual response
4. Individual response
5. Sustainable logging means that timber is removed from the forest and replaced with new similar trees so that the forest is available in the future.
6. Individual response
7. Tourism brings money from other areas of the world to help the economy of the country where the rainforest exists. When the rainforest brings in money because it exists, the local people value it more and will maintain it as a resource.

## The Four Wonderful Layers of the Rainforest

Tropical rainforests capture our imagination because this ecosystem is so different from the climate and vegetation that Americans in North America experience in their everyday lives.

Tropical rainforests contain animals, insects and plants that are adapted to the warm climate and rainy conditions. Various plants and creatures have evolved to fill a unique spot within the four wonderful layers of the rainforest: emergent layer, canopy, understory, and rainforest floor.



The emergent layer is the highest part of the rainforest where the tallest trees tower above everything. These trees can grow 200 feet or more in height and get more sunlight than regular trees. Since they are so tall they do not grow in the same humid conditions found closer to the ground. Other trees that grow between 100 and 150 feet tall make up the rainforest canopy. These trees grow close together and make the rainforest shady. Many insects and birds as well as mammals like monkeys, orangutans and sloths live in the forest canopy.

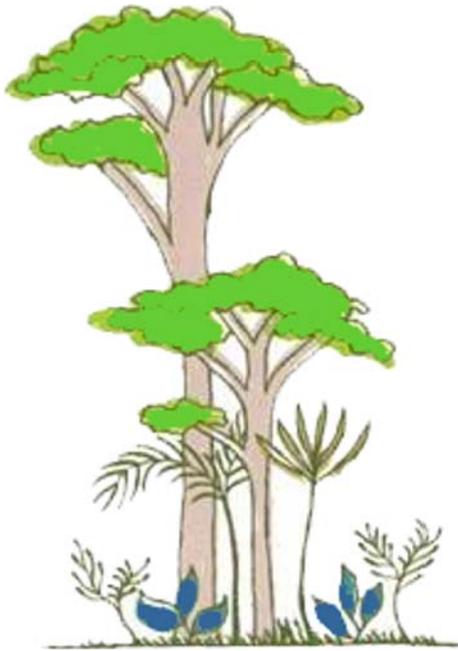
Below the rainforest canopy is the understory layer. The understory is made up of bushy large plants that don't grow very tall. These bushes and plants usually have large leaves in order to get as much light as possible and

capture enough moisture. The understory is shady and humid plus it is the home for a wide variety of tropical insects, birds and reptiles.

The lowest layer of the rainforest ecosystem is the rainforest floor. With so much vegetation and large trees the rainforest floor itself receives just a little sunlight. The rainforest floor is ground that is covered with decomposing matter like fallen leaves, rotting logs and mosses. Insects, snakes, frogs and other small creatures as well as large mammals like jaguars and okapi inhabit the forest floor.

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Describe the layers of the rainforest. Describe the plant and animal life found within each layer.

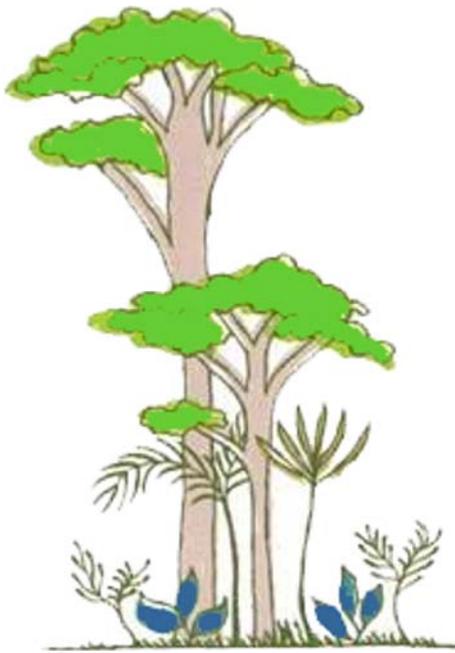



Name: \_\_\_\_\_ Date: \_\_\_\_\_

### The Rainforest Animal Shuffle

Match the animal to the layer of the rainforest they would be found in.

Remember, some animals can be found in more than one layer.




#### Animals

- |                  |               |                 |                          |
|------------------|---------------|-----------------|--------------------------|
| anole lizard     | anteater      | boa constrictor | emerald tree snake       |
| epiphytes        | fruit bat     | fungi           | jaguar                   |
| leaf cutter ants | leaf litter   | leopard         | lianas                   |
| ocelot           | orangutan     | parrot          | passion flower butterfly |
| sloth            | spider monkey | toucan          | tree frog                |

Name: \_\_\_\_\_ Date: \_\_\_\_\_

**The Four Wonderful Layers of the Rainforest - Multiple Choice Questions**

Circle the correct answer.

1. The layer of the rainforest occupied by the tallest trees is the
  - a. Emergent layer
  - b. Canopy
  - c. Understory
  - d. Rainforest floor
  
2. The rainforest canopy contains
  - a. Bushes with large leaves
  - b. Decaying vegetation
  - c. Rotting logs
  - d. None of the above
  
3. The rainforest understory contains
  - a. Bushes with large leaves
  - b. Decaying vegetation
  - c. Rotting logs
  - d. None of the above
  
4. The rainforest floor
  - a. Receives abundant sunshine
  - b. Receives very little sunshine
  - c. Has fertile soil
  - d. None of the above
  
5. The okapi is an African rainforest mammal that lives in/on the
  - a. Emergent layer
  - b. Canopy
  - c. Understory
  - d. Rainforest floor
  
6. Insects inhabit the
  - a. Canopy
  - b. Understory
  - c. Rainforest floor
  - d. All of the above

Name: \_\_\_\_\_ Date: \_\_\_\_\_

### The Four Wonderful Layers of the Rainforest - Short Answer Questions

1. Draw a realistic picture of the rainforest and label each of the four layers.
2. The big-leaf mahogany tree is an example of a tree species that inhabits the emergent layer of the rainforest. Do some research and write a short report about why this tree is one of the world's most important forest products.
3. The black-and-white colobus monkey is one of the few mammals that live in the emergent layer of the African rainforest. Do some research and write a short report about the habits of this monkey.



4. Describe the canopy layer of the rainforest.
5. Do some research and write a report about the habits of the okapi.



6. Two amphibians that inhabit the understory of the tropical rainforest are the poison dart frog and the gaudy leaf frog. Do some research and write a short report about the habits of one of these frogs.



Poison Dart Frog

7. Which layer of the rainforest interests you the most and why?

## The Four Wonderful Layers of the Rainforest - Answer Key

### Multiple Choice

1. a.
2. d.
3. a.
4. b.
5. d.
6. d.

### Short Answer

1. Individual response
2. Individual response
3. Individual response
4. Trees that grow between 100 and 150 feet tall make up the rainforest canopy. These trees grow close together and make the rainforest shady. Many insects and birds as well as mammals like monkeys, orangutans and sloths live in the forest canopy.
5. Individual response
6. Individual response
7. Individual response

## Where Is a Rainforest?

A rainforest is anyplace on earth that gets a minimum of 80 inches of rain per year. Most spots on earth that get that much rain per year are located in the tropics, an area in the middle of the planet near the equator. Most tropical rainforests get anywhere from 160 to 400 inches of rain a year.

In some rainforest areas the rainfall can occur almost equally throughout the year. In other areas there is a monsoon season when the shifting winds bring more precipitation in the form of rain to an area. The monsoon season is followed by a dry season with less rain. No matter what the location on earth or when during the year the rain falls, rainforests get huge amounts of rain.

Tropical rainforests exist in South America, Central America, Africa, Southeast Asia, Australia and islands in the Indian and Pacific Oceans. Americans find tropical rainforests fascinating to study about because the plants and animals there are so different from what we experience on the North American continent. But, surprisingly enough, there are rainforests in the continental United States.

Remember that the definition of a rainforest depends on the number of inches of rain that falls annually. The state of Oregon gets an average of 120 inches of rain per year in the mountains along the coastline of the Pacific



Ocean. This region of the United States qualifies as a true rainforest; it is called a temperate rainforest because it is not hot like the tropics. A temperate rainforest has its own unique plants and animals that make up the ecosystem.

Washington State contains the Olympic rainforest and a part of the Great Smoky Mountain National Park is considered to be temperate rainforest.

Name: \_\_\_\_\_ Date: \_\_\_\_\_

### Where Is a Rainforest? - Multiple Choice Questions

Circle the correct answer.

1. Tropical rainforests are located
  - a. Anywhere that gets enough rain
  - b. In North America
  - c. Near the equator
  - d. All of the above
  
2. A monsoon season is
  - a. Controlled by shifting winds
  - b. A time of increased rain
  - c. Followed by a dry season
  - d. All of the above
  
3. Continents that have rainforests include
  - a. North America and South America
  - b. Antarctica and Africa
  - c. North America and Antarctica
  - d. None of the above
  
4. Two states that contain rainforests are
  - a. Florida and Louisiana
  - b. Oregon and Washington
  - c. Florida and Georgia
  - d. Alabama and Mississippi
  
5. Tropical rainforests exist on islands in the
  - a. Pacific Ocean
  - b. Atlantic Ocean
  - c. Both a. and b. above
  - d. None of the above
  
6. A temperate rainforest
  - a. Exists near the equator
  - b. Has unique plants and animals
  - c. Gets less rain than a tropical rainforest
  - d. Gets more rain than a tropical rainforest

Name: \_\_\_\_\_ Date: \_\_\_\_\_

### Where Is a Rainforest? - Short Answer Questions

1. Discuss the amount of rain that falls in rainforests.
2. What is the difference between a tropical rainforest and a temperate rainforest?
3. Explain the cycle of a monsoon season. What is the major controlling element of the monsoon season?
4. Most tropical rainforests get anywhere from 160 to 400 inches of rain a year. Convert these numbers to feet to better understand how much rain falls in these areas.
5. List three places in the continental United States that qualify as temperate rainforests.
6. Mosses and lichens grow in many temperate rainforests. Do some research and write a short report about the characteristics of these plants.
7. Both tropical and temperate rainforests are home to various species of slugs. Do some research and write a short report about the characteristics of slugs.

## Where Is a Rainforest? - Answer Key

### Multiple Choice

1. c.
2. d.
3. a.
4. b.
5. a.
6. b.

### Short Answer

1. A rainforest is anyplace on earth that gets a minimum of 80 inches of rain per year. Most spots on earth that get that much rain per year are located in the tropics. Most tropical rainforests get anywhere from 160 to 400 inches of rain a year.
2. A tropical rainforest exists near the equator while a temperate rainforest exists further north or south from the equator in an area with a cooler (temperate) climate.
3. A monsoon season occurs when the shifting winds bring more precipitation in the form of rain to an area. The monsoon season is followed by a dry season with less rain.
4. 160 inches = 13.3 feet  
200 inches = 16.6 feet
5. The Oregon coast; the Olympia rainforest in Washington State; portions of the Smoky Mountain National Park
6. Individual response
7. Individual response

## Rainforest Weather

The weather in a rainforest region, just like weather anywhere else, depends on the location of the area in relation to the equator. The warmest parts of the earth lie along the equator and the further north or south a location is from the equator, the



colder the climate can become. The coldest parts of the earth are the Arctic and Antarctica, located on the earth's poles furthest from the equator.

Tropical rainforests are close to the equator and the days and nights are of equal length, almost exactly 12 hours each. The largest tropical rainforest is the Amazon rainforest in Brazil in South America. The temperature in the Amazon rainforest does not change very much throughout the year. Manaus is a major city of nearly 2 million people that is located next to the Amazon rainforest. Daytime temperatures in Manaus average a steady 86 to 91 degrees F year-round while nighttime temperatures fall only to 73 degrees.

Areas of the Amazon rainforest receive 70 to 100 inches of rain per year. While that's a lot of rain, the days are still sunny and bright. A typical morning dawns cool, only 73 degrees, and sunny. As the sun rises in this

area close to the equator, the temperature quickly rises to nearly 90 degrees. The warmth of the sun causes the moisture in the rainforest to evaporate and clouds begin to form.

The Amazon rainforest does not produce the same types of clouds Americans see in North America. Clouds that form in the rainforest contain lots of moisture so rain clouds, called cumulonimbus clouds, form high in the atmosphere. As these clouds expand, a thunderstorm can develop and a sudden downpour occurs. It's not unusual for this downpour to produce an inch of rain in an hour, flooding the forest.

This rainwater quickly evaporates again and about  $\frac{3}{4}$  of the rain forms new clouds.

Name: \_\_\_\_\_ Date: \_\_\_\_\_

### Rainforest Weather - Multiple Choice Questions

Circle the correct answer.

1. The kind of weather that a rainforest experiences depends on the distance from the
  - a. Equator
  - b. Sun
  - c. Moon
  - d. Clouds
  
2. In a tropical rainforest near the equator
  - a. The days are long and the nights are short
  - b. The days are short and the nights are long
  - c. Days are a little bit longer than nights
  - d. Days and nights are about equal in time
  
3. In the Amazon rainforest the temperature
  - a. Remains about the same year-round
  - b. Is much hotter in July than any other month
  - c. Is much colder in January than any other month
  - d. Is much hotter in January than any other month
  
4. In the Amazon rainforest as the day gets warmer
  - a. Moisture evaporates from the rainforest
  - b. Clouds form
  - c. The chance of a thunderstorm increases
  - d. All of the above
  
5. In the tropical rainforest cumulonimbus clouds cause
  - a. Hail
  - b. Sleet
  - c. Thunderstorms
  - d. All of the above
  
6. In the Amazon rainforest most of the water from rainfall
  - a. Flows down the Amazon River
  - b. Fills up the Amazon Basin
  - c. Evaporates into new rain clouds
  - d. Gets stored underground

Name: \_\_\_\_\_ Date: \_\_\_\_\_

### Rainforest Weather - Short Answer Questions

1. Describe the location of the earth's equator and the poles and explain how these influence weather.
2. Which place on earth would you rather visit, the equator or one of the poles? Explain your answer.
3. The following chart shows the average monthly temperature in Manaus, Brazil. Complete the chart with the average monthly temperature in your area. Then create a bar graph for each to compare the Brazilian climate to your climate.

#### Average Daily High Temperature Degrees F

M O N T H	J	F	M	A	M	J	J	A	S	O	N	D
M A N A U S	86	86	87	87	87	87	88	90	91	91	89	88

4. Write a poem about the rainforest weather. Include adjectives about clouds, rain and sun.
  
5. Draw a diagram that shows the cycle of rainwater in the rainforest – how moisture from the rainforest evaporates, forms clouds, etc.

## Rainforest Weather -Answer Key

### Multiple Choice

1. a.
2. d.
3. a.
4. d.
5. c.
6. c.

### Short Answer

1. The warmest parts of the earth lie along the equator and the further north or south a location is from the equator, the colder the climate can become. The coldest parts of the earth are the Arctic and Antarctica, located on the earth's poles furthest from the equator.
2. Individual response
3. Individual response
4. Individual response
5. Individual response