Rainforest Jewels

Teacher Resource Materials
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Teacher's Guide

Group Activities

Rainforest Learning Center
Objective: Encourages independent study.

Rainforest Mural
Objective: Students put research skills to work to find out more about the ecosystem they will recreate in the classroom.

Rainforests in the News
Objective: To raise student awareness about the importance of rainforests and what is being done to save them.

Environmental Facts
Objective: To raise student awareness about how much garbage the U.S. generates and what simple things can be done to conserve energy and reduce waste.

What's So Great About Rainforests Anyway?
Objective: Educates students about the diversity of rainforests and introduces them to the different problems we face in preserving the world's rainforests.

Is there a Jungle in your Kitchen?
Objective: Demonstrates to students the diversity of items that come from the rainforest that they can find in their own kitchen.

Rainforest Snacks
Objective: Introduces students to foods that come from the rainforest and gives them recipes to take home and share with their families.

Rainforest Layers
Objective: Educates students about trees and other vegetation dispersal in the rainforest.

Rainforest in a Bottle
Objective: Students create their own rainforest terrarium. They will discover how the rainforest disperse water.

To the Trees!
Objective: Introduces students to the different adaptations of various arboreal species which live in rainforests.

Create a Climber
Objective: Students apply knowledge about arboreal animal adaptations to create their own unique climber.
Indigenous People
Objective: Introduce students to a different way of life.

Reduce
Objective: Familiarizes students with different things they can do to conserve our planet's resources, by reducing the amounts of resources they waste.

A Lesson in Energy Awareness
Objective: Gets students directly involved in creating an energy efficient home or classroom.

Reuse
Objective: Familiarizes students with different things they can do to conserve our planet's resources, by reusing the resources we already have.

Recycle
Objective: Familiarizes students with different things they can do to conserve our planet's resources, by recycling resources whenever possible.

Search out the Recyclables!
Objective: Familiarizes students with different products that can be recycled.

The Greenhouse Effect or Global Warming
Objective: Introduces students to the concept of the greenhouse effect and to what causes global warming.

The Solution
Objective: Students unscramble words to come up with solutions for decreasing carbon dioxide gas.

Glossary of terms
Objective: Familiarizes students with terms that will be used in the live animal presentation as well as throughout this resource packet.

Animal fact sheets
Primary: Introduces students to the animals that will be presented in the assembly program. Fact sheets utilize glossary terms. Have younger students color the animals and take the sheets home to share with their parents.

Secondary: Introduces students to the animals that will be presented in the assembly program. Animal Fact sheets utilize species scientific names and classifications.

Create a Slogan and Design a Poster
Objective: A creative activity designed to stimulate student reflection of conservation measures.
Create A Food Chain!

**PRIMARY LEVEL:** Students use paper to construct food chains, in order to learn how all the Earth’s plants and creatures are linked together and to the sun.

**SECONDARY:** Create a food chain. Challenge students to create a food web.

**Wild Animals Don’t Make Good Pets**

**Objective:** Explanation of why wild animals do not make good pets and why domestic animals do.

**Domestic Vs. Wild**

**Objective:** Reinforces the differences between wild and domestic animals.

**Voting Collection**

**Objective:** This is one election students are allowed to vote in. Encourages students to participate in the democratic process.

**Quiz**

**Resource List**
Rainforest Learning Center

Set up a spot in your classroom where students can browse through material and read about the world's rainforests independently. Be sure to allow some class time for students to visit the “learning center”. Display a variety of rainforest posters, provide magazines and books (containing articles about rainforests). National Wildlife Federation's "Ranger Rick" and "My Big Backyard" are good magazines for the younger crowd. Label and display different products made from rainforest resources. Food items from the Rainforest: display a coffee bean, a chocolate Kiss®, or cinnamon stick in a sealed jar. Gums, Resins, and Oils from the Rainforests: display a stick of chewing gum, a latex rubber glove, a bar of soap containing cocoa butter.

Provide an incentive for independent study. Create the trunk and branches of a tree on the wall of the study area (it can be as simple or as fancy as you like). Stock the study area with pre-cut leaf shaped pieces of paper and markers. Ask students to write out one new thing they have learned, on a leaf shaped paper, each time they visit the “learning center”. Pin leaves onto a tree branch. No two leaves should convey the same information. Keep track of each students progress. The three students that add the most new leaves to the tree should be given a simple reward (inexpensive trinkets, bonus points on an upcoming quiz, extra recess time, etc.). Students will soon be able to see how much they have learned!

Enclosed you will find a resource list to help you gather appropriate books and materials for your learning center.
Rainforest Mural

Divide the class into several small groups. Assign each group a specific layer of the rainforest to be portrayed in their mural. Environments you may choose to assign include the: emergent layer, canopy layer, understory, forest floor and river. Students should discuss what animals to include in their environment. Water and food sources should be portrayed in the mural as well.

Older biology and science students should be asked to include food chains and niches. When the murals are completed, have students give the mural a title and label each animal species.

Older students may also be asked to research and write about how each animal in their mural has adapted to living in its environment.
Rainforests in the News

Display a world map prominently located in the classroom. Assign older students to look through newspapers and magazines and to cut out any articles featuring rainforest plant or animal species, native people, or conservation efforts. Send a note home with younger students asking their parents to help the student find an article relating to rainforests from various children’s magazines such as "Ranger Rick" and "World Magazine".

Color rainforest areas on a world map red so that students will easily be able to recognize, at a glance, where rainforests are found around the world. This will help them to understand how few rainforest regions are out there. Remind them that over half of all the world’s animal species live in the rainforest!

Arrange the articles at appropriate points around the map. Cut yarn and pin one end to the part of the world map that shows where the story originated. Set a block of time aside during the day or class period to discuss new articles and what they mean.

Your class will soon be able to see at a glance in which parts of the world rainforests are making headlines!
* ENVIRONMENTAL FACTS *

Here are some facts you can share with the class to help illustrate why it is important to REDUCE, REUSE, and RECYCLE. These three things can help make the world better for humans and animals.

Start an environmental facts board in your classroom. Have students illustrate the facts listed below and ask them to come up with a simple solution to solve some of the problems we have conserving our planet's resources. For example: How could we reduce the amount of garbage buried in landfills? Answer: Reduce the amount of garbage we generate, Reuse or give things away we no longer find useful, Recycle everything that can be recycled, and compost leaves, grass clippings and food scraps.

Each and every American throw about a half a ton of garbage each year.

A home recycling program only takes about 2 minutes a day.

Making one ton of recycled paper uses only 60% of the energy that it takes to make a ton of new "virgin" paper!

If everyone recycled their Sunday papers every week, we would need to cut down 500,000 less trees to print newspapers every week!

A ton of recycled aluminum saves 95% of the energy needed to make new aluminum! The energy saved from recycling one aluminum can, can run your TV set for three hrs!

More than half the energy we use at home is used to heat or cool the house. Half of that energy is wasted by insufficient insulation.

New "compact" fluorescent bulbs use 1/4th the energy of a regular light bulb and last 10 times longer!

Taking quick showers uses 1/2 the amount of water that a bath does. With new water saving shower heads you can reduced the amount of water you use to 1/4!

Even though rainforests only cover 7% of the earth's surface, it is home to more than half the plants and animals living on earth today!

Challenge students to find new facts to illustrate and add to the board.
What's So Great About Rainforests Anyway?

Lots! A tropical rainforest is a warm, thick, wet, forest that is home to amazing people and animals - like parrots, monkeys, and jaguars.

Rainforests only cover about 7% of the earth, but scientists think that over half of all the plants and animals living on our planet today, live in tropical rainforests! A single acre of tropical rainforest may support 60-70 different kinds of trees. One wildlife reserve in the Costa Rican rainforest of South America has more different kinds of birds living there than live in all of Canada, the United States, and Mexico combined!

Thousands of things we Americans use everyday come from plants and trees that grow in tropical rainforests. Do you ever think where the rubber for the tires on the school bus; the medicine you take when you are sick; the cinnamon you sprinkle on your toast; or the banana in your lunch come from? Tropical rainforests! Rainforests are filled with valuable resources that can be harvested without damaging the forest or its' trees. People who live in rainforests have been doing it for hundreds of years!

Sadly, in parts of the world where tropical rainforests are found, many people living outside the forests are very poor. Farmers destroy forests to plant food crops to sell, so they can feed their families. Ranchers destroy forests to make grazing land for the cattle they raise, for food and leather, so they can feed their families. Loggers destroy forests by collecting beautiful woods, to sell to others who make furniture, to make money to feed their families. Scientists and other people who are worried about the future of rainforests, are finding ways to help these people earn money to feed their families without destroying rainforests.

This type of destruction of rainforests is called deforestation. When deforestation occurs, the plants and animals that once lived in the rainforest may become vulnerable, threatened, endangered, or even extinct! Deforestation may also cause the weather all over the world to change! This is called global warming or the green house effect.

In order for us to save our planet's rainforests, we need to: conserve our resources; be careful what we buy; and tell other people what we know about rainforests. Once they learn what great places rainforests are, they'll want to do what they can to save them too!
Is there a Jungle in your Kitchen?

Many people are surprised to learn how many food items we use today that originally come from rainforests. With an adult's permission or assistance check your kitchen at home to see how many of the following items you have. Check them off as you go.

<table>
<thead>
<tr>
<th>Fruits &amp; Vegetables</th>
<th>Spices &amp; Flavors</th>
<th>Other Foods</th>
</tr>
</thead>
<tbody>
<tr>
<td>___ avocado</td>
<td>___ allspice</td>
<td>___ Brazil nuts</td>
</tr>
<tr>
<td>___ banana</td>
<td>___ black pepper</td>
<td>___ cashew nuts</td>
</tr>
<tr>
<td>___ grapefruit</td>
<td>___ cardamom</td>
<td>___ chicle (gum)</td>
</tr>
<tr>
<td>___ guava</td>
<td>___ cayenne (red pepper)</td>
<td>___ coconut</td>
</tr>
<tr>
<td>___ heart of pal</td>
<td>___ chili pepper</td>
<td>___ coconut oil</td>
</tr>
<tr>
<td>___ lemon</td>
<td>___ chocolate or cocoa</td>
<td>___ coffee</td>
</tr>
<tr>
<td>___ lime</td>
<td>___ cinnamon</td>
<td>___ cola</td>
</tr>
<tr>
<td>___ mango</td>
<td>___ cloves</td>
<td>___ lime oil</td>
</tr>
<tr>
<td>___ orange</td>
<td>___ ginger</td>
<td>___ macadamia nuts</td>
</tr>
<tr>
<td>___ papaya</td>
<td>___ mace</td>
<td>___ palm oil</td>
</tr>
<tr>
<td>___ passion fruit</td>
<td>___ nutmeg</td>
<td>___ tapioca</td>
</tr>
<tr>
<td>___ pepper</td>
<td>___ paprika</td>
<td>___ tea</td>
</tr>
<tr>
<td>___ pineapple</td>
<td>___ tumerc</td>
<td></td>
</tr>
<tr>
<td>___ plantain</td>
<td>___ vanilla</td>
<td></td>
</tr>
<tr>
<td>___ tangerine</td>
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<td></td>
</tr>
</tbody>
</table>

How many of the items listed above did you find in your kitchen at home?

Are you surprised at how many items in your kitchen come from rainforests?

What is your favorite way to eat three of the items?

1. 

2. 

3. 

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Rainforest Snacks

Make these recipes and enjoy them at home or make some at school to enjoy a rainforest feast!

Rainforest Mix

1 cup of banana chips 1 cup of cashew nuts
1 cup of dried pineapple chunks 1 cup of coconut flakes
1 cup of chocolate chips

Combined ingredients in a large mixing bowl. You may wish to also add brazil nuts, dried papaya, and macadamia nuts if you can find them.

Jungle Punch

1 banana 1 can of lemon-lime soda
1 cup of orange juice 1 pint of lime sherbet
1 cup of pineapple juice

Puree a soft, ripe banana in the blender. Add orange & pineapple juices and blend together. Add lemon-lime soda and mix well. Put a spoonful of lime sherbet in each cup and fill with punch. Makes about 1 quart.

Spice Cookies

1 1/4 cup brown sugar (packed) 1/2 tsp. ground ginger
1/2 cup shortening 1/2 tsp. cinnamon
1 egg 1/4 tsp. allspice
1/2 tsp. salt 1/2 tsp. nutmeg
1 3/4 cups all purpose flour

Heat oven to 375°. Mix sugar, shortening, and egg. Stir in remaining ingredients. Shape the dough into one inch balls. Place about two inches apart on ungreased cookie sheet. Using a fork, flatten dough slightly with a criss-cross pattern. Bake 10 - 12 mins. Makes about 4 dozen.
Rainforest Layers

**Emergent** trees tower above the rest of the jungle canopy. These jungle giants average between 115-150 feet tall, but some reach heights of up to 250 feet. There are usually only one or two emergents per acre.

**Canopy** trees combined with emergents to form a continuous cover over the forest. The canopy acts as a giant umbrella, catching most of the sun's rays. Only 2-5% of the sun's rays ever reach the floor. The canopy also sways in the wind, and absorbs most of the impact of falling rain. Canopy trees have special pointed leaves that cause rainwater to quickly run off. Many ferns, mosses, orchids, and even small trees grow on branches in the canopy layer so that they can get the sunlight they need to grow.

**Understory** smaller trees that don't usually grow to heights of more than 15 feet, a shorter shrub layer of very young canopy trees and woody plants combined to create the shadowy understory.

**Forest Floor** sheltered from the wind and sun, the air is very still and humid. Some seedlings, Herb's, vines, and ferns grow on the floor. Vegetation is fairly sparse due to a lack of sunlight. The forest floor is really quite an open area.
Rainforest in a Bottle

Rainforests regulate the dispersal of water on earth. They soak up the moisture from the rain and release it into the air as clouds. The clouds then travel hundreds of miles to release the water (as raindrops) to drier areas.

**Materials:** a two-liter plastic bottle, scissors, plastic wrap, gravel, charcoal (as sold for use in fish tank filters), potting soil, and small tropical plants such as philodendron, prayer plants, fittonia, artillery plants, etc. (purchased at a nursery, florist, or variety store).

1. Remove label & black plastic bottom from bottle. Rinse bottle well with warm water.

2. An adult should cut the top off the bottle where it begins to curve.

3. Line detached plastic bottom with plastic wrap folded several times over.

4. Spread about 1 inch of gravel over plastic wrap. Spread a thin layer of charcoal over the gravel and fill with potting soil.

5. Dig a little whole in the soil for each of the plants to be planted (two is fine). Carefully remove the plants from their containers, place them in the holes and press lightly.

6. Water the plants with about 1/3 cup of water. Invert and place the plastic cover over the plants forming a dome. The terrarium should be placed in a spot with a lot of indirect sunlight it should not be directly in the sun.

Watch your miniature rainforest to see the water released from the plants form droplets on the inside of the dome. The droplets will rain down and continuously water the plants. Since the terrarium is not air-tight you will need to add water to the soil every couple of weeks.

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To the Trees!

Toucans nest and feed in the tallest trees, while peccary’s deer and other species spend their entire lives on the forest floor. Many other forest creatures like the coati use the multi-layer approach in their search for food, shelter, or to escape an enemy.

The most important thing when climbing a tree is to keep from falling out of it! Many forest creatures around the world have developed special adaptations to help them keep their balance in the trees.

Grasping Toes
Many monkeys and apes have special hands and feet with opposable thumbs to give them strong grasping ability. Birds and some other tree climbers have long powerful toes with sharp curved claws to sink into tree bark. Still other climbers, like the tree frog, have sticky pads at the ends of their toes to help them grasp leaves and bark.

Gripping Tails
Some animals have specially adapted tails to keep them from falling out of the trees. Ordinary tails help animals balance whether they are in the trees or on the ground. Prehensile tails can act as a third arm, gripping or grasping limbs as the animal moves through the trees. Prehensile tails are very muscular and can support the animals entire body weight. In the space below, list as many different animals as you can that have prehensile tails.

Scaly Climbers
Many snakes can climb trees too! Who says you need arms and legs to climb a tree? Large scales, called scutes, on the snakes belly expand and contract to grip tree bark. Most tree climbing snakes also have very strong prehensile tails.
Create a Climber

Now that you know some of the different adaptations tree climbers have, create your own. Once you have drawn or sculpted your tree climber, answer these questions.

What part of the world does your animal live in?

Does your animal live in the trees or just climb on occasion?

If your animal just climbs on occasion, why does it climb?

What does your animal eat?

Where does your animal get food and water from?

What animal(s) would eat your animal?

What adaptations does your animal have to help it to avoid being eaten by another animal?

Could your animal survive if there were no trees? Why or why not?
Indigenous People

Not only do millions of species of plants and animals live in the rainforests around the world, but many people also call rainforests their home. Although today many indigenous people live like we do, some tribes still live as their ancestors did before them.

These tribes get everything they need to survive from food to medicines to clothing from rainforests. Besides hunting, gathering wild fruits & nuts and fishing, Indigenous people plant small gardens using a farming method called shift cultivation. First a small area is cleared and burned. Then many different types of plants are planted. After a few years the soil is too poor to allow more crops to grow. So they move to a nearby uncleared area and start over. Traditionally the cleared areas are allowed to regrow for 10 - 50 years before they are farmed again.

Shift cultivation is still practiced by tribes who still have access to large amounts of land. However, with the growing number of non-indigenous farmers and shrinking rainforest areas, many Indonesian and African tribes are now forced to stay in one area.

Most tribal children don’t go to school like we do. Instead they learn about the forest around them from their parents and others in their tribe. They learn how to hunt, fish and which plants are useful as medicines or food. Some tribal children know more about tropical rainforests than scientist who have studied them for years! A wise indigenous man once said:

“The earth is our historian, our educator, the provider of food, medicine, clothing, and protection. She is the mother of our races.”

Until about 40 years ago, the lack of roads prevented may outsiders from using the rainforest. Today, roads constructed for timber & oil companies, cattle ranchers and miners have destroyed millions of acres of rainforest. Because of this, some indigenous people are forced to move to different areas including crowded cities. Imagine being forced to move to a different country where you knew nothing about the culture or language!

The good news is that we can all make a difference by practicing the three R’s that follow.
Reduce, Reuse, & Recycle!
Reduce

Reduce the amount of electricity and water you use. Turn out the lights when you are not using them. Whenever you leave a room - and no one else is still there - turn off the lights, TV, or stereo. When you brush your teeth: just wet your toothbrush, then turn off the water. When you need to rinse your brush, turn the water on again. You can save up to nine gallons each time you brush your teeth! If you get into the habit of reducing waste, you will be helping to save our earth’s resources!

List some other ways you and your family can reduce waste:
A Lesson in Energy Awareness
(Lower your monthly utility bill!)

Because young students are not usually directly involved in creating an energy efficient home or classroom they are usually unaware of the items they use everyday that are electrically powered.

**Materials:** Construction paper (including yellow), scissors, tape.

1. Make “Energy Officer” badges out of construction paper.

2. Have students cut several sun-shapes out of yellow construction paper.

3. Tell students they are now “Energy Officers”. Armed with tape and sun shaped cut-outs, asked students to place one paper sun on each item in the classroom that uses energy. Ask them to do the same thing at home.

4. Tell students it will be their daily duty to turn off the items when they are not in use. Reward energy conscious officers often for a job well done.
Reuse

To reuse, go through your closet, your basement, even look under your bed. Instead of throwing away things you can't use or don't want anymore, find a new home for them. Give them to a friend, Goodwill, or the Salvation Army. You'll be saving a little piece of the earth (by not adding waste), getting rid of stuff you don't want anymore, and be making some one else happy all at the same time!

List some items that you could give away for someone else to reuse:

List some items your family reuses and tell how they are reused.

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Recycle

By now everyone probably has at least heard of the word recycle. One form of recycling is to collect glass, plastic, aluminum, and even tin containers (after you've used up what is inside) instead of throwing them away. When you have collected a lot, you can take them to a recycling center. They will then be sent to a factory where they will be sorted, melted down and made into new containers.

Hopefully you already recycle at home. Glass, plastics, aluminum, tin, paper, motor oil, and even old car batteries can all be recycled. Recycling is very easy it only takes about fifteen minutes a week. It's a good idea to get adults involved in recycling with you.

When recycling aluminum, don't forget clean aluminum foil, pie plates, frozen food trays, and some food cans can be recycled along with the soda cans.

The main material needed to make new aluminum comes from underneath the ground. In order to get to it, trees must be cut down and cleared away. A lot of trees must be cut down and a lot of ground must be dug up to get all the material we need to make new aluminum. The best way to protect the trees and the ground is to recycle! There is no limit to the number of times that aluminum can be melted down and reused!

List items your family recycles. If your family does not already recycle, list the items you will ask your family to start recycling:
Search out the Recyclables!

Find these above:

- Tin
- Soda cans
- Bottles
- Aluminum
- Motor oil
- Paper bag
- Plastic
- Milk jugs
- Cans
- Newspaper
Search out the Recyclables!

Answer Sheet

Find these above:

- Tin
- Soda cans
- Bottles
- Aluminum
- Motor oil
- Paper bag
- Plastic
- Milk jugs
- Cans
- Newspaper

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The Greenhouse Effect

A greenhouse is a building made of glass, where flowers, and other plants that need lots of warmth can be grown. The sun's rays shine in through the glass and warm the inside of the greenhouse. The roof and walls keep the heat from getting out.

or Global Warming

The earth is surrounded by an invisible blanket of gases (like carbon dioxide, methane, and nitrous) that act like a greenhouse. The sun's rays shine down on the earth and the blanket of gases trap the heat and keeps it close to the earth. That's good - people, plants, and animals all need warmth to live.
The Solution

A lot of things people do make more and more gases. Carbon dioxide is created when fossil fuels like oil, natural gas, and coal are burned to create electricity, power our cars, or heat our homes. Even trees, when cut down, give off these gases. All the extra gases we are creating are trapping more and more of the sun's heat. This could eventually make it too hot in some parts of the world for people, plants, and animals to live!

The best way for us to prevent this from happening is to:
(Unscramble the following words to discover the solution)

asve           ygeren
            ————  ————

vsae           niarofserts
            ————  ————————————

ecceylr
Glossary

**Adaptations** :
Special things about animals that help them to live where they do in the world. For example, fish have gills, the gills help the fish to breathe under water. Gills are a fish's adaptation to living under water.

**Arboreal** :
To live in the trees. Birds who spend most of their time in the trees are arboreal.

**Arthropod** :
An invertebrate animal with jointed legs and a segmented body. Insects, like the ant, are arthropods.

**Camouflage** :
The color or pattern of an animal's fur, feathers, or skin, that helps to hide in their surroundings. A turtle's shell may help it to camouflage among rocks.

**Carnivore** :
An animal that eats meat. A tiger is a carnivore.

**Conserv** :
To use only what you need and nothing more. To eliminate waste and save for the future. If you turn off the lights when you are the last one leaving a room, you will be conserving energy!

**Deforestation** :
When trees and forests are cut down and taken away, it is called deforestation.

**Diurnal** :
To be active during the day. People are diurnal.

**Domesticated** :
A long time ago people decided to let certain kinds of animals live with them. Slowly, over hundreds and hundreds of years, the animal's relatives became used to living with people. These animals became domesticated. Dogs are the domesticated relatives of wild wolves.

**Endangered** :
Animals whose numbers have dropped so low, that they are in danger of becoming extinct. Certain kinds of birds and monkeys living in the rainforests today are endangered species.
Environment:
The surroundings an animal lives in. A person's house community is their environment.

Enzymes:
A protein-like substance made by plants and animals that causes a chemical reaction. Our stomach produces enzymes that help us to digest food.

Extinct:
The complete loss of a species. Dinosaurs are extinct.

Frugivore:
An animal that eats mostly fruit. A kinkajou is a frugivore.

Habitat:
The surroundings (environment) in which a plant or animal lives. Including all the other plants and animals live in the area and any physical conditions such as terrain or climate.

Habitat destruction:
Everyday, there are more and more people living on the earth. All these people need room to live. They move into places that are already home to many plants and animals. Forests are cut down and wild areas are filled with houses and stores. The animals that once lived in these areas have to leave and try to find new homes.

Herbivore:
An animal that eats plants. Cows are herbivores.

Indigenous:
Occurs naturally in a certain area. Indigenous people usually refers to native people or tribes, who have lived in the same place for hundreds of years.

Insectivore:
An animal that eats insects. Tarantulas are insectivores.

Invertebrate:
Animals with no back bone. Insects and other arthropods are invertebrates.

Nocturnal:
To be active at night. Owls sleep during the day and are active at night. Owls are nocturnal.
Omnivore:
Animals that eat both plants and meat. People eat meat, like hamburgers, but we also eat fruits and vegetables. People are omnivores.

Opposable thumb:
A thumb that works like a human's thumb. Used for grasping and holding.

Predator:
An animal that hunts other animals for food. When an owl hunts for food, such as a mouse, it is a predator.

Prehensile:
Able to grasp. Our hands are prehensile because we can grasp things with them. Some animals in the rainforests have prehensile tails.

Prey:
An animal that is hunted and caught for food. Mice are prey for owls.

Resources:
Our planet earth has many resources. These resources are what makes life possible here on earth. Some of the earth's main resources include: fresh water, clean air, plentiful food (like fish, meat, fruits, and vegetables), and fossil fuels to provide a natural source of energy. If these resources are spoiled or used up too quickly it will be hard for people, plants, and animals to continue living on earth.

Shift cultivation:
A method of growing crops in the rainforest. An area is cleared and burned, then planted. After a few years the soil is too poor to grow crops. So they move and start over.

Threatened:
A species that is close to becoming endangered.

Tropical Rainforest:
An evergreen forest located near the equator. There is an abundance of rainfall and a very warm, humid climate year-round.

Vulnerable:
If habitat destruction or hunting is affecting a population of animals, and conditions do not change, the animals will become threatened.
**Venom**:
A poison used by many animals to kill or stun prey.

**Wildlife reserve**:
A special place where plants and animals can live, protected from habitat destruction and people.
Lemurs

There are around 100 species or kinds of lemurs. The word lemur comes from a latin word *lemures* which means ghost or spirit. Lemurs are only found on the island of Madagascar. Most Lemurs are **Diurnal**.

Lemurs are prosimians or primitive monkeys. One of the **adaptations** of lemurs and monkeys is hands with **opposable thumbs** that help them to climb trees and smooth vines.

Some species of lemurs have a scent gland that they use in a lemur stink fight. Learn more on this appearance on “The Most Extreme – Fighters” by one of our Safari Guides:

[https://youtu.be/TXyZCQN5ks8](https://youtu.be/TXyZCQN5ks8)

Lemurs are **omnivores**. They eat mostly leaves and fruit, but will occasionally eat insects and small animals. **Habitat destruction** has made these amazing animals scarce in the wild rainforests of Madagascar.
Parrots

Parrots are both **diurnal** and **arboreal** birds that live in rainforests around the world. Parrot's powerful bills are strong enough to crush the hardest nuts and seeds with ease. Their strong bill is also used as a kind of third foot to help them get around in the trees.

Parrot's feet are different from most other birds' feet. They have two toes pointing forward and two toes pointing backward. This arrangement provides them with a very powerful grip. This also allows them to use their feet like hands. When a parrot eats, it will often pick the food up in one foot and hold it close to his bill. Like humans, parrots are either "right-handed" or "left-handed". 

![Parrot illustration]
Green Iguana

The green iguana is a **diurnal** reptile that lives in the rainforests of South America. They are mainly **arboreal** but are also very good swimmers. They will often rest on branches over water so they can drop into the water and swim away when scared. If there is no water around they will run away. If cornered, they will use their strong tail as a whip. When grabbed by the tail, the iguana can drop part of it off! Leaving a predator holding the part of his tail, while he escapes. The tail grows back, but it is never as nice as the first one.

The green iguana has fallen victim to **habitat destruction**, the pet trade and as a meat of choice to many people in South America.
Kinkajou

The kinkajou is both **nocturnal** and **arboreal** that lives in the rainforests of South America. During the day he sleeps in a tree hollow with his front feet covering his eyes. At night he moves through the trees easily with his **prehensile** tail and sharp claws.

Kinkajous feed on only the ripest fruits. Using their six inch tongue, they can extract honey and nectar from the trees. Although kinkajous live alone, many may feed in the same tree at night, hissing and screaming at one another as they compete for food.
Burmese Python

The Burmese python is one of the largest snakes in the world. It can reach a length of over 17 feet, and weigh more than 200 pounds!

This giant predator does not have to chase his prey, instead, he just waits quietly for the prey to come to him. When the prey is close enough, he does not use his many needle sharp teeth to kill his prey. He prefers to wrap his body around his prey and squeeze tight!
Bird Eating Tarantula

Despite their CREEPY reputation, tarantulas are not deadly, although their large fangs can deliver a painful bite. Bird-eaters are the largest of the tarantulas about the size of a dinner plate.

Tarantulas don’t make webs, but they do spin silk that they use to lay up to 2000 eggs in. Tarantulas hunt by stealth, they sneak up on beetles, crickets, millipedes, and other insects, and pounce to catch their prey.

All spiders have venom including tarantulas. However, most tarantula’s bites are not dangerous to people, just to their insect prey. Tarantulas cover their insect prey with special enzymes that dissolve the insect before the tarantula eats it.
Brazilian Salmon Pink Bird-Eating Tarantula

Scientific name: *Lasiodora parahybana*

Order: Araneae.

Family: Theraphosidae.

Distribution: Northeastern Brazil

Habitat: Tropical forest floor.

Number of young: 500 to 2000
Kinkajou

Scientific name: *Potos flavus*

Order: Carnivora

Family: Procyonidae.

Distribution: Southern Mexico to the Mato Grosso in Brazil

Habitat: Tropical forests

Breeding Season: September to November.

Gestation: 112 - 118 days.

Number of young: one sometimes two
# Lemurs

<table>
<thead>
<tr>
<th></th>
<th>Red ruffed lemur</th>
<th>Ring-tail Lemur</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scientific name:</strong></td>
<td><em>Varecia rubra</em></td>
<td><em>Lemur catta</em></td>
</tr>
<tr>
<td><strong>Order:</strong></td>
<td>Primates</td>
<td>Primates</td>
</tr>
<tr>
<td><strong>Family:</strong></td>
<td>Lemuridae</td>
<td>Lemuridae</td>
</tr>
<tr>
<td><strong>Distribution:</strong></td>
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<td>Southern Madagascar</td>
</tr>
<tr>
<td><strong>Habitat:</strong></td>
<td>Tropical forest</td>
<td>Gallery forests</td>
</tr>
<tr>
<td><strong>Breeding season:</strong></td>
<td>May to July</td>
<td>April to May</td>
</tr>
<tr>
<td><strong>Gestation:</strong></td>
<td>102 days</td>
<td>135 days</td>
</tr>
<tr>
<td><strong>Number of Young:</strong></td>
<td>1 to 6</td>
<td>1 to 2</td>
</tr>
</tbody>
</table>

Red ruffed lemur

Ring-tail Lemur

![Red ruffed lemur](image1.jpg)

![Ring-tailed lemur](image2.jpg)
Green Iguana

*Scientific name:* *Iguana iguana*

*Order:* Squamata

*Family:* Iguanidae

*Distribution:* Southern Mexico to Central Brazil

*Habitat:* Tropical forests

*Breeding Season:* during the dry season which begins in November

*Incubation:* 74 - 81 days

*Number of young:* 20 or more eggs
Blue and Gold Macaw

Scientific name: *Ara ararauna*

Order: Psittaciformes

Family: Psittacidae

Distribution: Tropical regions of Panama, Columbia, Brazil, Venezuela, Bolivia, Guianas

Habitat: Tropical forest

Breeding season: during the dry season which begins in November

Incubation: 24 - 28 days

Number of young: 1 - 3
Burmese Python

**Scientific name:** *Python molurus*

**Order:** Squamata

**Family:** Boidae

**Distribution:** India, Indo-China, S. China, Malayan Archipelago

**Habitat:** dry rocky terrain to tropical rain forest

**Breeding season:** Once a year during the time when it is the most humid

**Number of young:** 5 - 20
Create a Slogan and Design a Poster

Materials: Sample posters, bumper stickers, ads from magazines, and so forth as models of what a good slogan and poster should contain.

Discuss
What is a slogan? Repeat slogans that you have heard ("Don't Drink and Drive", "Save the Whales", "Just say No!")

Brainstorm
Create a list of conservation topics (endangered animals, recycling, conservation of bio-resources, saving ...). Have the class work together to come up with possible slogans. Write down everything. Circle the slogans which the class likes the best.

Select
Let each student select the slogan he/she would like to turn into a poster. Have students make a rough sketch of their posters on scratch paper. Lettering should be large and easy to read at a distance. When each student is happy with the look of their poster sketch, they can move on to create a finished product.

Display
Have the students work together to decide the best location for displaying their finished posters, and how the display should be organized.
Create A Food Chain!

Every animal's survival depends on all other forms of life within it's habitat. There is a natural order in the wild which is called the food chain. The removal of one part of the food chain disturbs the whole balance in nature.

Materials:
Construction paper (red, brown, yellow, green, & blue), Crayons, Paste, Scissors, & String (optional)

1. Cut several one inch strips of colored construction paper. Set yellow strips aside.

2. Have students draw pictures on and label the different colored strips as follows:
   green = plants
   brown = insects (arthropods)
   blue = plant eaters (herbivores)
   red = meat eaters (carnivores)

3. Have students link the strips together to form a paper food chains. Examples:

   grass > rabbit > fox
   grass > grasshopper > mouse > snake > owl

4. Now make a larger ring out of yellow construction paper to represent the sun. Have students attach their chains to the "sun" with a yellow strip.

5. To display, pin up on a wall or ceiling. Have older students lay their chains on the floor (with the "sun" in the middle, and the food chains projecting out like rays). Have them look carefully to see if any of the chains can be linked together to form a food web. To link chains together, run string from one chain to another. When they are finished display the food web from the ceiling.

   When you are ready to take the food web down, do it by removing one link (representing a certain plant or animal species) at piece at a time. This will simulate how important all the links in the web of life really are.

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WILD ANIMALS DON'T MAKE GOOD PETS

Thousand of years ago people started breeding wolves. They kept and bred only the animals they liked. This selective breeding over thousands of years produced what we today call the dog. The dog is still a relative of the wolf, but acts differently because it is domesticated. Wolves are wild.

A lot of people in Texas think if they get a wild animal young enough it will become a pet. This is not true. Wild animals have very different needs from domestic animals. If wild animals are not cared for properly they may become sick very quickly and die. Someone who expects a wild animal to act like a pet may end up seriously hurt. Most people think of pets as being loyal, affectionate, and well mannered. Remember, it took thousands of years of selective breeding to remove wild instincts from and retrain “man’s best friend”!
Domestic vs. Wild

Directions: Draw a line through the wild animals and circle the domestic animals. Some of the species listed below may be considered domestic in some areas where it is found, and wild in others. In that case, put a star next to that species.

llama    house cat    dog

fox      mole      snake

goat     mule     parakeet

bobcat  turtle    monkey

cougar  water buffalo    hawk

Now list the domestic animals below and explain why each species was domesticated to live around people. For companionship, work, or pleasure.
Domestic vs. Wild Answer Sheet

**Directions:** Draw a line through the wild animals and circle the domestic animals. Some of the species listed below may be considered domestic in some areas where it is found, and wild in others. In that case, put a star next to that species.

- llama *
- house cat
- dog
- fox
- mole
- snake
- goat
- mule
- parakeet *
- bobcat
- turtle
- monkey
- cougar
- water buffalo *
- hawk

Now list the domestic animals below and explain why each species was domesticated to live around people. For companionship, work, or pleasure.
Wild llamas live in the mountain areas of South America. **Domesticated llamas** have lived and worked with people in much the same way camels have for thousands of years. The **house cat** is a **domestic** animal. The house cat's wild relatives are in a family called Felids. Foxes are wild animals. **Mules** are **domestic** hoof stock. People sometimes keep snakes as "pets", and farmers may use them for rodent control, but they are not domestic animals. Moles are wild Insectivores. In some countries wild monkeys are used to help people pick fruit from trees, however, they are not considered domestic. In many countries Birds of Prey are used in the sport of Falconry, even so, Birds of Prey are wild animals. Wild **goats** may be found in the mountains of many countries, but, many more goats may be found in **domesticated herds** living with people. Cougars are wild animals. Although many people in many countries have kept parrots for thousands of years, people have not been successful at breeding the wild instincts out of parrots. **Chickens** are **domestic birds**. **Dogs** are **domestic Canids**. **Water Buffalo** are kept as **domestic hoof stock** throughout Asia. Although people in Africa and India train and work with elephants on a daily basis, they cannot be considered domestic animals because they have not been selectively bred. In Ancient Egypt cheetahs were used by Kings and Pharaohs for hunting, much like many people use dogs for hunting today the difference being that dogs are domestic, cheetahs are wild. **Dolphins** are wild marine mammals that are very social. Many dolphins are trained and used to aid the U.S. Navy in certain underwater procedures still today. **Fish** that are "Farm raised" are considered **domestic**.
Organize a Voting Collection

Animal Edutainment® is a Not-for-Profit organization that provides homes for more than 50 orphaned, surplus, or unwanted exotic animals including: arthropods, reptiles, birds and mammals. If you are interested in adopting an animal, your school can raise money by recycling cans & paper, collecting penny rolls, or organizing a voting collection.

Post pictures of several different animals to be chosen from. Allow students, teachers, and parents to pick their favorite by buying votes at 25 cents a piece. A good time to hold this “election” is on a week during “Open House” or when PTA meets. Each morning, during “election week” make an announcement to let students know which animal is in the lead!

Your class or school may choose to Adopt-a-Critter for six months or a year. Your support (refer to list) will help pay for the care and feed of the animal of your choice. Your class or school will receive a biographical portrait, an attractive adoption certificate that acknowledges your valuable support, and an 8x10 photo of the animal you choose to adopt.

<table>
<thead>
<tr>
<th>Arthropods</th>
<th>Small Mammals</th>
</tr>
</thead>
<tbody>
<tr>
<td>✶ $35</td>
<td>✶ $50</td>
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<tr>
<td>Bird-eating tarantula</td>
<td>Hedgehog</td>
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<tr>
<td>Chilean Beautiful Tarantula</td>
<td>Sugar Glider</td>
</tr>
<tr>
<td>Madagascar Hissing Cockroach</td>
<td>Tenrec</td>
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</table>

<table>
<thead>
<tr>
<th>Reptiles</th>
<th>Medium Mammals</th>
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<tbody>
<tr>
<td>✶ $75</td>
<td>✶ $150</td>
</tr>
<tr>
<td>American Alligator</td>
<td>Ferret</td>
</tr>
<tr>
<td>Blue tongue Skink</td>
<td>Opossum</td>
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<tr>
<td>Burmese Python</td>
<td>Prairie Dog</td>
</tr>
<tr>
<td>Bearded Dragon</td>
<td>Rabbit</td>
</tr>
<tr>
<td>Kingsnake</td>
<td></td>
</tr>
<tr>
<td>Legless Lizard</td>
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<td>Red Tegu</td>
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<table>
<thead>
<tr>
<th>Birds</th>
<th>Large Mammals</th>
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<tbody>
<tr>
<td>✶ $100</td>
<td>✶ $250</td>
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<tr>
<td>African Gray Congo</td>
<td>Binturong</td>
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<tr>
<td>Barn Owl</td>
<td>Kinkajou</td>
</tr>
<tr>
<td>Blue &amp; Gold Macaw</td>
<td>Lemur</td>
</tr>
<tr>
<td>Great horned Owl</td>
<td>Porcupine</td>
</tr>
<tr>
<td>Turkey Vulture</td>
<td></td>
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</tbody>
</table>
QUIZ

Advanced students can be asked to rewrite false statements, making them true.

___ Rainforests are homes to over half of all plants and animals living on our planet today.

___ Deforestation causes plants and animals to become vulnerable, threatened, endangered or extinct.

___ The United States has a greater variety of birds in it than a rainforest does.

___ We don't need to worry about conserving the earth's resources, there is plenty to go around.

___ Nocturnal animals sleep at night.

___ Iguanas must be careful around the water because they are not very good swimmers.

___ Binturongs are from South America.

___ Parrots have very powerful bills that can break through very hard nuts and seeds.

___ Kinkajous mainly eat fruit.

___ Wild animals never make good pets.

___ Burning of fossil fuels contributes to global warming.

___ Our planet stays warm because of the greenhouse effect.

___ By practicing the 3 R’s - reduce, reuse, and recycle you have the power to conserve our earth's resources.

___ All living things are part of the food chain.

___ If an animal is arboreal, it was born on Arbor Day.
QUIZ

Advanced students can be asked to rewrite false statements, making them true.

T__ Rainforests are homes to over half of all plants and animals living on our planet today.

T__ Deforestation causes plants and animals to become vulnerable, threatened, endangered or extinct.

F__ The United States has a greater variety of birds in it than a rainforest does.

F__ We don't need to worry about conserving the earth's resources, there is plenty to go around.

F__ Nocturnal animals sleep at night.

F__ Iguanas must be careful around the water because they are not very good swimmers.

F__ Binturongs are from South America.

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Resource List

Children’s Stories:


Other Resources:


