

# FORESTS FOR PEOPLE MORE THAN YOU CAN XIMAGINE!



LEVEL 2

HOW OLD THE TREE IS.  
COUNT THE TREE RINGS TO SEE



# Hungry For A TREE COOKIE?

Trees play a big part in our life here on Earth. Our future depends on trees. Trees give us clean air to breathe, clean water to drink, wood to build our homes and a habitat where wildlife can live. Trees also tell us a lot about the past. They can tell us about a hurricane that happened hundreds of years ago, or fires, floods and the years of drought when there was not enough rain. We can find out a lot by looking at tree cookies!

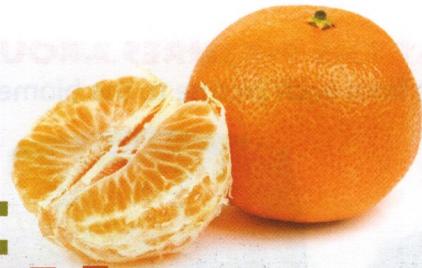


Tree cookies aren't good to eat, unless you're a carpenter ant or wood bee! **They are a cross-section of a tree.** When you look at a tree cookie you will see tree rings. As trees grow, a ring is added each year. If the ring is narrow it might tell us that winter was longer that year so the growing season was short, or there was a drought and the tree didn't get enough rain. Scars on the tree cookie might tell us that there was a fire or that the tree had a disease or was infested with insects that year. Scientists called **dendrochronologists** study trees and other woody plants. Sometimes they study the growth rings in trees to find out about the past and predict future climates.



**COUNT THE TREE RINGS TO SEE  
HOW OLD THIS TREE IS. \_\_\_\_\_**

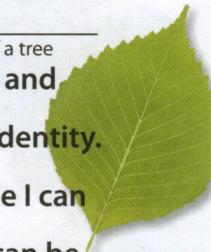
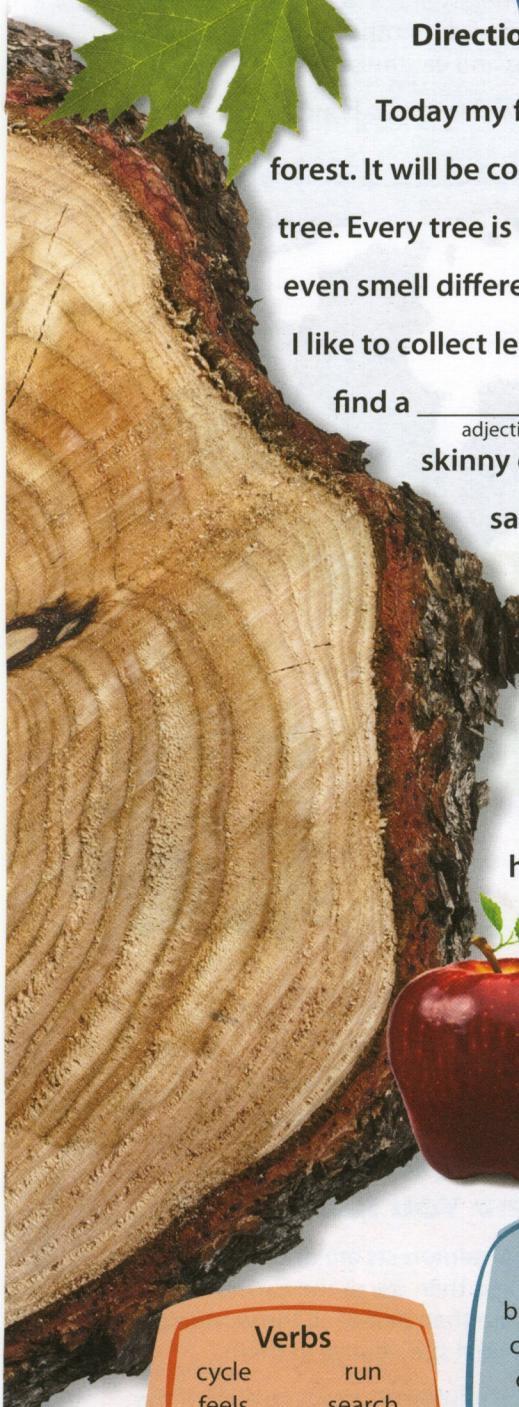




# ADVENTURE, CLUES & SNACKS: Any Way YOU Want!

**Directions:** Use the words in the boxes to fill in the blanks and write a story!

Today my family is going to \_\_\_\_\_ through a \_\_\_\_\_  
verb                      adverb                      type of forest  
 forest. It will be cool! My \_\_\_\_\_ is going to look for a \_\_\_\_\_  
noun                      adjective                      species of a tree  
 tree. Every tree is different just like people. Trees can look different, feel different and  
 even smell different from each other! It is a lot of fun to find the clues to a tree's identity.  
 I like to collect leaves. Leaf types are another good clue to the type of tree. I hope I can  
 find a \_\_\_\_\_ leaf that is shaped like a \_\_\_\_\_. Leaves can be  
adjective                      adjective                      noun  
 skinny or fat, triangle shaped or needle shaped, smooth feeling or rough like  
 sandpaper and some are furry while others are shiny. My favorite tree  
 \_\_\_\_\_ like (a) \_\_\_\_\_. Another good clue  
verb                      adjective                      noun  
 about trees is their bark. Bark can be rough or smooth and can  
 be a lot of colors like brown, gray or white. \_\_\_\_\_  
species of a tree  
 trees have \_\_\_\_\_ bark. One of the best clues about a tree  
adjective  
 is if it has something I like to eat growing on it!!! This morning we  
 had \_\_\_\_\_ for breakfast with \_\_\_\_\_ that came from a  
noun                      noun  
 \_\_\_\_\_ tree. We are going to gather \_\_\_\_\_ in  
species of a tree                      noun  
 the forest today to make a snack for later. What a great day to  
 be outside and \_\_\_\_\_ in the \_\_\_\_\_.  
adverb                      verb                      noun



- Verbs**
- cycle
  - feels
  - fly
  - hop
  - laugh
  - looks
  - play
  - run
  - search
  - sing
  - smells
  - squeeze
  - yell
  - walk

- Adjectives**
- big
  - brown
  - clean
  - cool
  - dirty
  - fresh
  - giant
  - gray
  - green
  - hairy
  - loud
  - orange
  - pet
  - red
  - rough
  - skinny
  - small
  - smooth
  - wet
  - white

- Adverbs**
- carefully
  - joyfully
  - quickly
  - slowly

- Nouns**
- berries
  - brother
  - cat
  - cereal
  - circle
  - cousin
  - dirt
  - dog
  - father
  - flower
  - forest
  - fruit
  - hand
  - leaves
  - mold

- Species Of Trees**
- apple
  - ash
  - basswood
  - beech
  - birch
  - cherry
  - cottonwood
  - dogwood
  - hackberry
  - hawthorn
  - hickory
  - maple
  - oak
  - pear
  - pecan
  - red alder
  - sweet gum
  - sycamore
  - walnut
  - yellow poplar



## LOOK AT THE PICTURES AROUND THE MAP.

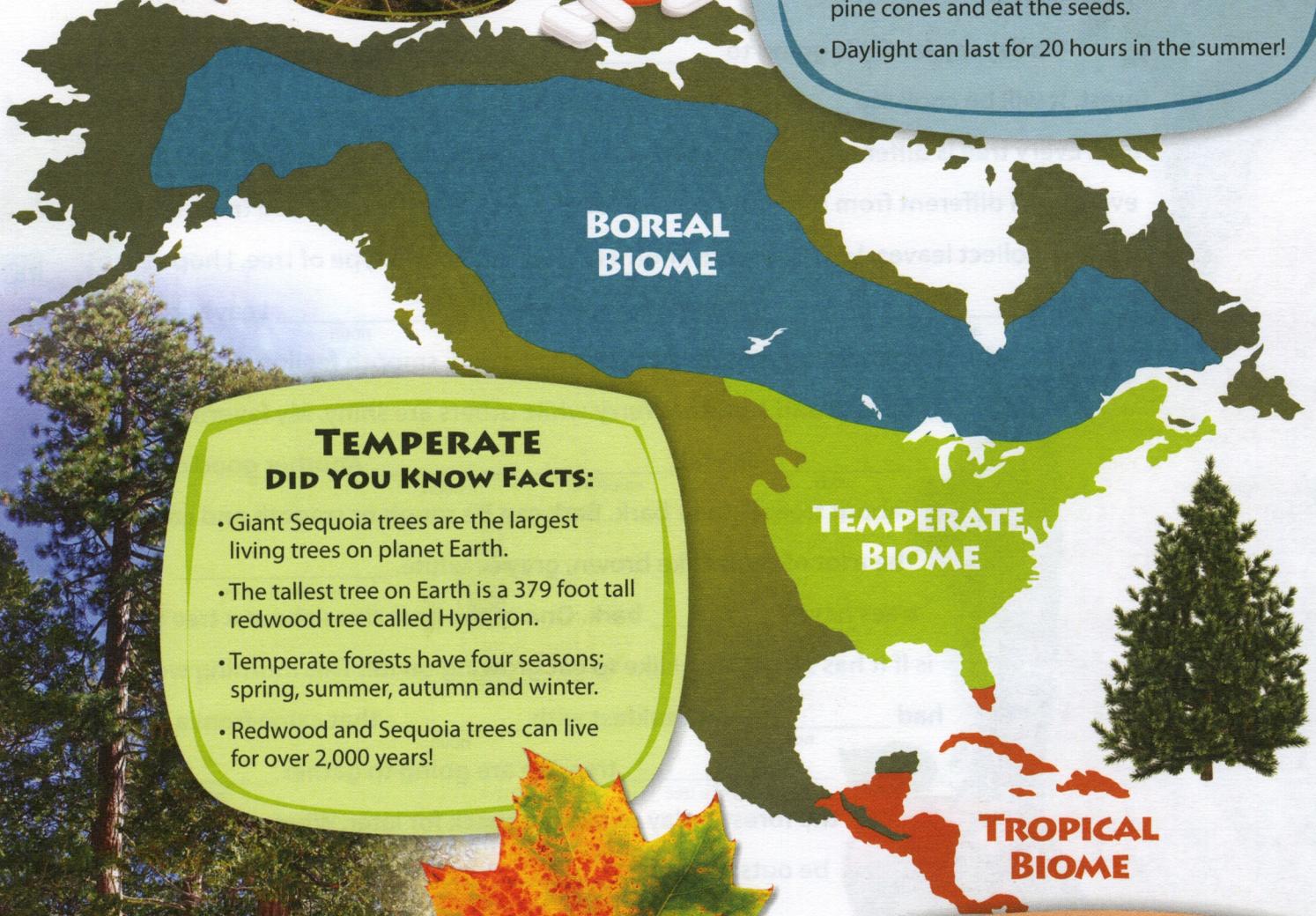
Draw a line from each picture to the biome it belongs to.



### BOREAL

#### DID YOU KNOW FACTS:

- The average temperature of the boreal forest in Yellowstone National Park in Wyoming is only 34° Fahrenheit! That's cold!
- Conifer trees have cones with seeds inside them. When a pine cone opens, its seeds fall to the soil below and a new tree can grow. Sometimes birds or other animals open the pine cones and eat the seeds.
- Daylight can last for 20 hours in the summer!



### TEMPERATE

#### DID YOU KNOW FACTS:

- Giant Sequoia trees are the largest living trees on planet Earth.
- The tallest tree on Earth is a 379 foot tall redwood tree called Hyperion.
- Temperate forests have four seasons; spring, summer, autumn and winter.
- Redwood and Sequoia trees can live for over 2,000 years!



### TROPICAL

#### DID YOU KNOW FACTS:

- Tropical rainforests are disappearing. They cover less than 6% of the Earth's surface but more than half of all the world's plant and animal species live in them.
- Tropical rainforests produce 40% of the Earth's oxygen.
- About 1/4 of all the medicines we use were discovered from research on rainforest plants.



# At Home In The BIOME



**A BIOME IS** the kind of **habitat** in a large area. A tropical forest is a **biome**. A desert is a **biome**. The kinds of plants and animals that live in a **biome** depend on how well they can adapt to the **climate, soil, water supply** and **geography** of that region.

## BOREAL FOREST BIOME

The **boreal** forest is called the **taiga**. The **taiga biome** is a cold place to live! The temperature in the winter can be as low as  $-76^{\circ}\text{F}$ . **Brrrrrrrr!** The winters last for about **7 months** and are dark because the Earth's tilt keeps the **taiga** turned away from the sun in the winter. Most of the trees in this forest "dress" to keep warm with thick bark.

**Boreal** forests are filled with conifer trees. **Conifer** trees have leaves that are needle-shaped and stay green all year. **Conifer** trees have **adapted** to the **taiga biome** because their needle shaped leaves lose less water than other kinds of trees. Another way these trees have adapted to the taiga is by their shape. **Conifer** trees are cone shaped, which protects them from snow and wind!

One of the animals that has **adapted** to the **boreal** forest is the snow-shoe hare. The hare has brown fur in the summer and thicker, white fur in the winter. The white fur helps the hare hide in the snow so other animals can't find it. Other animals that live in the **taiga** are reindeer, foxes, and wolverines.

## TEMPERATE FOREST BIOME

**Temperate** forests are also called **deciduous** forests.

**Temperate** forests are warmer than boreal forests. The average temperature is 50 to 75 degrees. These forests have **4 seasons**; spring, summer, autumn, and winter. In the spring and summer the leaves on **deciduous** trees are green. In the autumn the leaves are red, yellow,

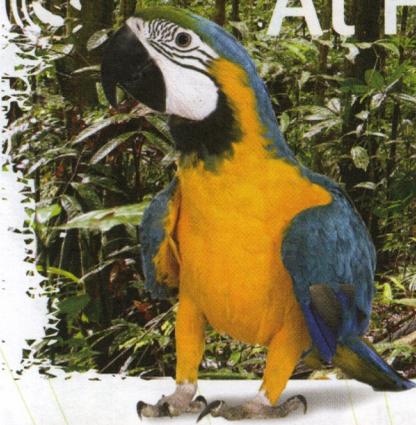
orange, and brown. During the winter season the leaves fall off the trees. The leaves decay and become part of the soil. The soil in **temperate** forests is full of minerals and other nutrients from all of the leaves and branches that fall to the ground.

The tallest trees in the world live in a temperate forest! These trees can be found along the coastal areas of California and are called Redwoods. Redwood trees can grow to 350 feet tall. That is as tall as a 23 story building! Sequoia trees are the **largest** living things on planet Earth, because they have a bigger diameter and contain more wood. The largest Sequoia tree is called General Sherman and it weighs approximately 2.7 million pounds! Both redwood and giant sequoia trees live to be very old—each tree can live for over 2,000 years.

Some of the animals that have adapted to life in a **temperate** forest biome are; squirrels, rabbits, skunks, birds, deer, mountain lions, bobcats, timber wolves, fox, and black bears. Skunks are famous because they stink! Skunks don't have to worry about other animals finding them—other animals stay away from skunks because they don't want to get sprayed. A skunk's spray is an oily liquid produced by glands under its black and white tail. A skunk can spray a person or animal as far away as 10 feet!

# At Home In The **BIOME**

continued



## TROPICAL FOREST BIOME

Tropical forests have **2** seasons; wet and dry. The sun shines for about 12 hours every day all year long and there is no winter season. Temperatures usually stay between 68 and 93 degrees. There are lots of rainy days in a **tropical** rainforest—50 to 260 inches of rain falls every year! The trees in **tropical rainforests** are so thick that hardly any sunlight reaches the forest floor. There can be tropical dry forests.

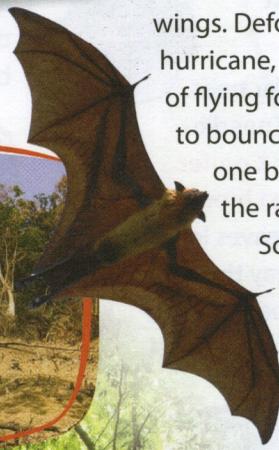
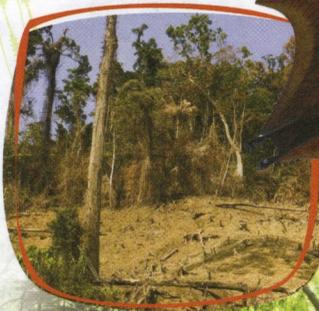
Tropical rainforests are disappearing but there are a number of reasons this is happening. These reasons include:

- clearing land for farming to grow food
- clearing land for grazing of cattle and other animals
- providing fuel for cooking
- making space for a place to live
- providing wood to build a house and furniture
- building dams to provide electricity and water
- allowing mining of minerals

While these reasons are vital to the people who live in tropical areas, the loss of tropical rainforests is a concern because of their importance.

**Can you think of some ways they could lessen their impact?**

One of the animals that has adapted to life in the tropical forest is the flying fox, also known as the fox bat. They are the largest of the bats, some have a wingspan of 5 feet (1.5 m), with a head and body length of about 16 inches (40 cm).



They can be found in the rainforest located in the National Park of American Samoa. Flying foxes don't always fly like birds. They can soar through the air and coast on currents of warm air without flapping their wings. Deforestation or disasters, like a hurricane, can greatly reduce the number of flying foxes in a forest and they are slow to bounce back because they only have

one baby per year. Flying foxes are good for the rainforest because they are great pollinators.

Some people refer to the flying fox as a fruit bat but they like more than just fruit. They only eat fruit and nectar from plants. One of their favorite foods is banana flowers. At night you can hear them squealing in banana patches because they are fighting over the flowers!



Many **species** of plants also live in the **tropical** forest because of the warm weather, rain, and sunlight. Up to three hundred different species of trees can live in one hectare (2½ acres) of the forest! The trees have **adapted** to life in

the **tropical** forest. Because of thin soil, tree roots here are shallow, so most of the trees have **buttressed** trunks, like a big cathedral to keep the tree stable. Often, these trees have no branches and leaves for at least 100 feet off the ground because the sunlight can't shine through the **canopy**. Most of the trees also have thin bark because there is no need to protect them from freezing temperatures.

# ALIVE In The Forest

Look at the pictures to the right. The pictures are all of living things. Living things are called **organisms**. Many organisms are alike in some ways. Organisms can be put into groups according to the ways they are alike. This is called **classifying**. These pictures can be **classified** into two groups.

Study the pictures. How are some of the organisms alike? \_\_\_\_\_

What two groups do you think these organisms can be classified into?

1. \_\_\_\_\_
2. \_\_\_\_\_

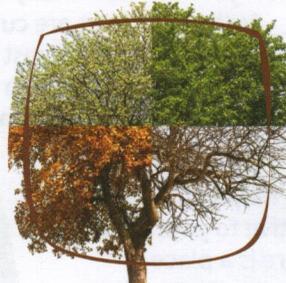
One of the ways these organisms can be classified is into the groups of **PLANTS** and **ANIMALS**.

Look at the pictures again. Write the letter "P" in the box below each picture of a plant and the letter "A" in the box below each picture of an animal. On the line below each picture write which forest biome the plant or animal has adapted to; **boreal**, **temperate** or **tropical**.
















## A DAY FOR TREES

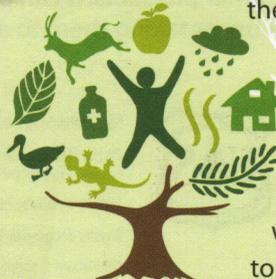
Many countries all over the world have tree planting festivals. In the United States it is called **Arbor Day**. Arbor Day is a day to remember how important trees are in our lives. It was first celebrated in Nebraska in 1872. Today, all 50 states celebrate Arbor Day. You can check on the web site below to see when your state celebrates and what your state tree is. This year, have a tree planting celebration of your own!



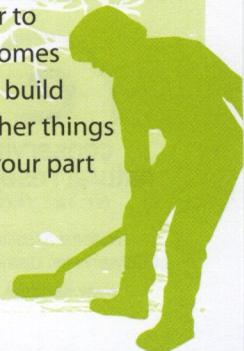
<http://www.arborday.org/arborday/arbordaydates.cfm>

## A YEAR FOR TREES

The United Nations declared the year 2011 the "International Year of Forests" so that people all over the world will realize how important forests are in their lives and our need to protect them. Forests give us clean air to breathe, clean water to drink, food to eat, homes for wildlife, wood to build houses, and many other things we use every day. Do your part to protect our forests!



INTERNATIONAL YEAR  
OF FORESTS • 2011





# PLANT A TREE!



Did you know that most people use enough products that are made from trees every year to equal a 100-foot-tall tree? That means that if you are 8 years old, 8 trees have already been cut down for you to use! Things like medicines, pet foods, cereals, school books, posters, guitars, movie tickets, crayons, floors, beds, paper towels, and pie filling are all made from materials that come from trees. Look around the room where you are right now. How many things can you see that come from a tree? \_\_\_\_\_ Millions of trees are cut down every year to supply our needs.

Millions of trees are also burned every year in forest fires. But, the good news is that trees are a renewable resource. That means you can cut a tree down and a new tree will grow back either by a tree seed germinating or planting a new tree. Here are the steps to follow to plant a tree.

**Step #1:** Ask a grown-up to help you do a little research. What trees are native to your area? Pick one to plant! See if there is a place in your yard or you can get permission to plant somewhere in your community.

**Step #2:** Pick a spot. Think about how big the tree will get and plant it where it won't be in the way of power lines, buildings, streets, or gardens. You can also plant the tree where it will shade large windows or your family's air conditioner to save energy and money.

**Step #3:** Choose a time. This varies widely by where you live. Check with an arborist or other natural resource person in your area.

**Step #4:** Dig a hole. First, call your utility companies and ask them to mark underground cables or lines. Dig the hole twice as wide but not quite as deep as the root ball of the tree you are planting.

**Step #5:** Place the tree in the hole, take off the pot or burlap and gently fill in with soil and then water it!

For the first 3 years of its life, your tree needs about 25 gallons of water every week when it has green leaves. It's best to "deep water" the tree, which means it needs 25 gallons at one time so the water reaches the deepest roots. For more detailed instructions on planting a tree visit <http://nacdn.net.org/education/resources/>

There are other ways to help if you don't have the space to plant a tree. Talk to your family about recycling all sorts of paper and other products. It can be as easy as putting out the recycled products every week for pick up, or taking them to a recycling center while doing other errands.



**ROOT BALL**



**DIG A HOLE**



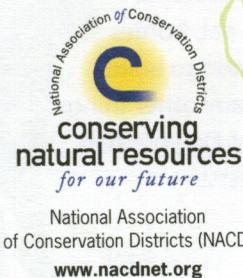
**PLANT A TREE**



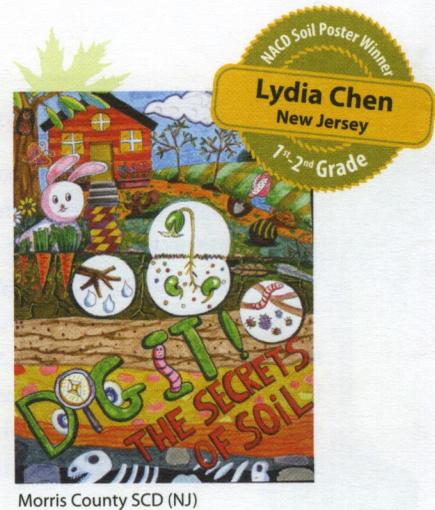
**WATER IT**

**Q: Why is it important to plant trees that are native to where I live?**

**A:** Native trees have certain traits that make them survive in areas where the climate, soil type, amount of rainfall, or lack of rain is correct for their species. They survive better than non-native trees and also have a resistance to insect damage and disease. They also provide food and habitat for native wildlife.



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