

Costa Rican Rainforest Binoculars and Terrariums

Time Needed

- 30-60 minutes depending on activity

Skill/Grade Level

- The intention of this lesson is to be utilized for any grade level with modifications based on the needs of the audience.

Core Area

- Leadership & Citizenship
- Natural Resources

Life Skills

- Giving
Responsible Citizens
- Working
Marketable Skills
- Being
Self-Responsibility
- Relating
Accepting Differences
Social Skills
- Caring
Sharing
Empathy
Concern for Others

Educational Standards

- National 4-H Mission Mandates

Core Curriculum

- Kentucky 4-H Leadership & International Programs

Objectives

Through the Kentucky 4-H International Program participants will:

- **Experience** different cultures through geography, history, symbols, language, government, economy, agriculture, customs, religion, arts, food, and fun facts.
- **Share** about their culture while exploring different cultures.
- **Process** connections between different cultures.
- **Generalize** interdependencies of different cultures.
- **Apply** knowledge to work cooperatively with others from different cultures.

Introduction to Content

According to the U.S. Department of Education International Strategy Report (2012-2016), in order for youth to succeed in the 21st century workplace, they must develop knowledge and understanding of other countries, cultures, languages and perspectives. The overall mission of 4-H is to provide opportunities for youth and adults to work together to create sustainable community change. This is accomplished within the use of three primary content areas, or mission mandates, - citizenship, healthy living, and science. The 4-H Citizenship Mandate places emphasis on young people being engaged and active members of their community, country, and world. Citizenship is the foundation needed to help youth gain a broader understanding of life.

Curriculum

4-Hers will increase their global competencies by:

- Identifying their role in the global society,
- Investigating the interdependences of cultures,
- Appreciating the accomplishments of other cultures,
- Cooperatively work with others from varying cultures.

Materials Needed

Binoculars:

- 2 empty toilet paper tubes
- 2 pieces of construction paper
- Twine or Yarn (enough to go around the tubes four times)
- Tools Needed: Glue, Hole Punch, Scissors

Terrarium:

- Small Pebbles and Soil
- Activated Charcoal and Moss (optional)
- Terrarium Plants (Ideally: succulents)
- Clean 2 Liter Plastic Bottle
- Scissors
- Spray Bottle with Water

Learn more at www.kentucky4h.org or contact your county extension office.





Introduction

- Can you find Costa Rica on a map?
 - Costa Rica is a country in Central America!
- What is a habitat?
 - According to National Geographic, a habitat is a place where an organism makes its home. A habitat meets all the environmental conditions an organism needs to survive. For an animal, that means everything it needs to find and gather food, select a mate, and successfully reproduce.
- What makes up a habitat?
 - According to National Geographic, the main components of a habitat are shelter, water, food, and space. A habitat is said to have a suitable arrangement when it has the correct amount of all of these. Sometimes, a habitat can meet some components of a suitable arrangement, but not all.
- What is a rainforest?
 - According to the National Geographic, a rainforest is an area of tall, mostly evergreen trees and a high amount of rainfall.

Background Information

- Costa Rica is a country in Central America, bordered by Nicaragua to the north, the Caribbean Sea to the northeast, Panama to the southeast, and the Pacific Ocean to the southwest. It is not an island but is on the isthmus that connects North America and South America. Geographically it's a part of North America but has cultural roots in Latin America. For three hundred years it was a Spanish colony, until 1838 when it gained independence from Spain. Today, Costa Rica is known for its beautiful landscapes and tremendous biodiversity. Another well-known feature are the wonderful, happy residents that come from a blend of indigenous heritage and Spanish colonial influence, with a dash of Jamaican, Chinese, and other immigrant cultures lending character and customs. The result is a nation of laid-back, friendly, and happy people who are affectionately referred to as 'Ticos'. Pura Vida! Which simply translated, means "simple life" or "pure life" is a way of life. Costa Ricans (Ticos) use this term to say hello, to say goodbye, to say everything is great, to say everything is cool.
- The rainforests of Costa Rica comprise 25% of the national territory and shelter species from both North and South America. There are three types of rainforests -- tropical rainforest, cloud forest and tropical dry forest. The country lost about two-thirds of its rainforests from 1950-1987. But, they have managed to bounce back thanks to the efforts to protect forest lands. Tropical rainforests are the most abundant but the cloud forests hovering around the volcanoes and mountains are the most exotic with mysterious fogs and exotic vegetation. Rainforests play a fundamental role in life as they help Earth's climate by diminishing the greenhouse effect and contain edible food crops and other important natural resources. The rainforests are also very important to the Costa Rican economy, not only for tourists but for food and other types of production. It has taken effort to find a balance to maintain the viability of the rainforests.
- Costa Rica's rainforests are home to an amazingly varied mix of mammals, reptiles, amphibians, insects, fish and birds; they are one of the most productive and intense ecosystems in the world. Trees can grow up to 100 feet tall! Thousands of smaller trees and shrubs create the understory layer. Binoculars can be very helpful for viewing all the wonder in a rainforest. Binoculars typically have two small telescopic type lenses fitted together, side by side, enabling a person to use both eyes when viewing items that are distant. Sometimes binoculars are preferred as they provide distance between a person and the subject being viewed. In a rainforest, using binoculars could provide protection from a mammal or insect or just protect the habitat itself from human interaction.

Costa Rican Rainforest Binoculars and Terrariums



Instructions for Binoculars:

1. Obtain all necessary supplies. Tutorial: <https://youtu.be/E-dPRNTERI>
2. Measure length of the toilet paper rolls against the construction paper.
3. Cut two pieces of the construction paper the width of the roll.
4. Apply glue to the outside of each tube and add construction paper to each tube separately, covering the entire tube. Add glue as needed to secure construction paper all the way around the tubes.
5. Use glue to attach twine or yarn around the ends of each tube. The twine or yarn is a decoration, so place about ½ inch from each end of tube.
6. Place tubes side by side and use glue to attach where they meet.
7. Choose an end of the tubes where you will attach the twine/yarn and punch a hole on the outside of each tube.
8. Loop the twine/yarn through the punched hole and tie, this will allow participant to wear binoculars around their neck.
9. Use stickers and decorate as desired.

Instructions for Terrariums:

1. Obtain all necessary supplies. Tutorial: <https://youtu.be/1xYpyYagNnk>
2. Ask an adult to help with cutting the 2-liter bottle. You will cut the bottle about 5-6 inches below the lid. Cut all the way around the bottle to create two pieces. Check that the top half of the bottle will fit snugly over the bottom half. You may need to make a few small slits with your scissors for the two to slide together. Set the top piece aside.
 - a. You may also trim away some of the top or bottom half if you prefer a shorter terrarium. Be creative.
3. Working with the bottom section of the bottle, place about an inch of small pebbles into the bottom of the bottle.
4. If you have activated charcoal, put a thin layer over the pebbles. If you do not move to the next step.
5. Add a thin layer of moss over the charcoal/pebbles. The moss will serve as a barrier between the soil and the pebbles and will retain moisture.
6. Add about 2-4 inches of soil.
7. Dig a small hole for each of your plants and gently place them. Take your fingers and gently press down the soil around the roots of each plant.
8. Use spray bottle with water to wet the soil slightly. You do not want mud. Just add a little water at a time, allow it to soak down into soil.
9. Add another thin layer of moss (optional).
10. Place the top half of the bottle over the bottom. Leave the cap on the top.
11. Place finished terrarium inside, out of direct sunlight. If the soil appears to be dry, use spray bottle to add water. You do not want the bottle to fog up, but some water droplets are okay! It is a balance. Too much water? Remove the cap for a couple of days to allow the moisture to escape, otherwise you may get mold or drown your plants!

Extended Learning

- Research the significance rainforests play in the environment and economy in Costa Rica.

Civic Engagement

- Research more about relationships between the United States and the government of Cost Rica.
- Learn about how organizations are protecting rainforests.

Communications

- Organize a pen pal program with the help of the 4-H International Program.
- Give a demonstration on how to make a terrarium.
- Create a field guide in your habitat using your binoculars as a tool.

Future Readiness

- Join the Kentucky 4-H International Program to expand your understanding of your role in the global marketplace.

Volunteering

- Ask your family to host an international delegate through Kentucky 4-H.

Junior Mentor/Teen

- Plan and conduct a workshop where you show them how to make binoculars or terrarium.



Reflect and Apply

1. Think about where you live. It may not be a rainforest, but can you see how the trees, shrubs, and grass create a habitat for other species? What can you do to protect the habitat in your yard?
2. What is something you learned about Costa Rica culture through this activity?
3. What does this lesson make you wonder about the rainforest and other environments?

Expand Your Experience

- Take a virtual field trip to Costa Rica with National Geographic:
<https://youtu.be/qTnTIECDO6w>
- Learn more about Costa Rica at National Geographic Kids:
<https://kids.nationalgeographic.com/explore/countries/costa-rica/>
- Check out the Kentucky State Fair 4-H Projects to complete the 4-H Terrariums:
<https://4-h.ca.uky.edu/content/state-fair-catalog>
- Do you want more information on what types of plants to put into your terrarium? Find more information with the University of Kentucky, College of Agriculture, Food and Environment:
<http://www2.ca.uky.edu/agcomm/pubs/4be/4be15po/4be15po.pdf>

Supporting Projects/Events

Kentucky 4-H International Programs provide various experience for youth and families to open their home to the world:

- International Summer Short Term Program (Inbound to USA)
- International Summer Short Term Program (Outbound from USA)
- Academic Year Program (Inbound to USA)
- Kentucky 4-H International Service-Learning Program

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