

# Scientific Inquiry, Episode 2

## Teacher's Guide

**Grade Level:** 3–5

**Curriculum Focus:** Science

**Lesson Duration:** 2 class periods

### Program Description

*The Sun and Its Planets* (6:37) – Take a journey through the cosmos and learn about the sun and the inner and outer planets.

*Changes in Weather and Climate* (5:01) – Investigate the difference between weather and climate.

*The Rain Forest and the Desert* (7:28) – Discover the unique characteristics of two vastly different ecosystems.

*Plate Tectonics* (4:44) – Learn about Pangaea and the theory of plate tectonics.

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### Onscreen Questions

- What are the inner planets?
  - What causes rain?
  - What are two characteristics of a rain forest?
  - What is the theory of plate tectonics?
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### Lesson Plan

#### *Student Objectives*

- Learn the meaning of the term “rain forest.”
- Discover the importance of protecting tropical rain forests.
- Make mobiles depicting unique animals and plants found in the Amazon rain forest

#### *Materials*

- *Scientific Inquiry, Episode 2* video
- Large index cards, 6 per student
- Wire hangers, 1 per student
- String
- Glue and tape

- Hole puncher
- Scissors
- Pencils, erasers, and rulers
- Crayons or markers
- Print resources with information about and images of the Amazon rain forest and the Manu Biosphere Reserve
- Computer with Internet access (optional)

### **Procedures**

1. Hold a discussion about the Manu Biosphere Reserve and the importance of preserving the Amazon tropical rain forest. A good way to introduce this topic is to show the segment "The Rain Forest and the Desert" in *Scientific Inquiry, Episode 2*. After watching the segment on the tropical rain forest, talk about what students learned. What does a tropical rain forest look like? How does a rain forest differ from other types of forests? What kinds of plants and animals live there? Why is it important to preserve rain forests?
2. Tell students that they are going to further explore life in the Amazon rain forest and create mobiles. To make the mobiles, students will need to find information about six unique plant or animal species, or a combination thereof. On one side of each index card provided, have them include an image of a plant or animal they have researched. On the other side of the card they should write the following information:
  - Name of plant or animal
  - Where it lives in the rain forest
  - For animals: predators and prey
  - For plants: the needs of the plant and animals that depend on it
  - Possible threats to this species
  - Two interesting or unusual facts about this plant or animal

Tell students that they will repeat this process for all six plants or animals. Allow them cut the cards into different shapes, like the shapes of the plants or animals. Encourage creativity in the project as long as the information is easy to read and the images are clear and colorful. In addition to encyclopedias, magazines, and other print resources you may have, the following Web sites have information about the Manu Biosphere Reserve and the Amazon rain forest that might be useful:

- <http://www.mayuc.com/manu.html>
- <http://gorp.away.com/gorp/location/latamer/peru/manubio.htm>
- <http://www.manu-wildlife-center.com>
- <http://rain-tree.com/index.html>
- <http://www.worldwildlife.org/wildplaces/amazon/index.cfm>



- <http://www.blueplanetbiomes.org/rainforest.htm>
3. After completing their cards, students will need to punch holes at the top of each and attach them to the wire hangers with string and glue or tape. Ask volunteers to share their finished mobiles with the class and discuss what they learned. Ask students: What are possible threats to these plants and animals? Why is it important to protect and preserve the rain forest?
  4. Display the mobiles in the classroom so that students may look at them during their free time.

### Assessment

Use the following three-point rubric to evaluate students' work during this lesson.

- **3 points:** Students were highly engaged in class and group discussions; demonstrated solid understanding of the topic; used research materials independently and wisely; and created unique and colorful mobiles that met the stated criteria.
- **2 points:** Students participated in class and group discussions; demonstrated understanding of the topic; used research materials with little teacher supervision; and created somewhat unique and colorful mobiles that met most of the stated criteria.
- **1 point:** Students participated minimally in class and group discussions; demonstrated little or no understanding of the topic; were unable to use research materials without teacher supervision; and created incomplete mobiles or mobiles that met little to none of the stated criteria.

### Vocabulary

#### ecology

*Definition:* The science of the relationships between organisms and their environment

*Context:* During time spent with the squirrel monkeys, Dr. Mitchell figured out their place in the rain forest's intricate ecology.

#### ecosystem

*Definition:* An ecological community that functions as a unit with its environment

*Context:* Many ecosystems throughout the world, including the rain forest, have been damaged or destroyed.

#### rain forest

*Definition:* A dense, evergreen forest occupying a tropical region with heavy annual rainfall



*Context:* Covering about four and a half million acres, the Manu Biosphere Reserve is the largest and most undisturbed rain forest in the world.

**species**

*Definition:* A group of related organisms capable of interbreeding

*Context:* The greatest diversity of animal species is found in a tropical forest.

**predator**

*Definition:* An organism that lives by preying on other organisms

*Context:* The sharp spines of the cactus protect its young from predators.

## *Academic Standards*

### **National Academy of Sciences**

The National Science Education Standards provide guidelines for teaching science as well as a coherent vision of what it means to be scientifically literate for students in grades K–12. To view the standards, visit <http://books.nap.edu>.

This lesson plan addresses the following science standards:

- Science as Inquiry: Understanding about Scientific Inquiry
- Life Science: Organisms and environments; Populations and ecosystems; Interdependence of organisms
- Science in Personal and Social Perspectives: Populations, resources, and environments; Personal and community health; Environmental quality; Natural resources

### **Mid-continent Research for Education and Learning (McREL)**

McREL's Content Knowledge: A Compendium of Standards and Benchmarks for K-12 Education addresses 14 content areas. To view the standards and benchmarks, visit <http://www.mcrel.org/compendium/browse.asp>

This lesson plan addresses the following national standards:

- Health – Knows environmental and external factors that affect individual and community health
  - Geography – Places and Regions: Understands the physical and human characteristics of place
  - Geography – Uses of Geography: Understands global development and environmental issues
  - Science – Life Science: Understands relationships among organisms and their physical environment
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## Support Materials

Develop custom worksheets, educational puzzles, online quizzes, and more with the free teaching tools offered on the Discoveryschool.com Web site. Create and print support materials, or save them to a Custom Classroom account for future use. To learn more, visit

- <http://school.discovery.com/teachingtools/teachingtools.html>
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## DVD Content

This program is available in an interactive DVD format. The following information and activities are specific to the DVD version.

### *How To Use the DVD*

The DVD starting screen has the following options:

**Play Video**— This plays the video from start to finish. There are no programmed stops, except by using a remote control. With a computer, depending on the particular software player, a pause button is included with the other video controls.

**Video Index**—Here the video is divided into sections indicated by video thumbnail icons; brief descriptions are noted for each one. Watching all parts in sequence is similar to watching the video from start to finish. To play a particular segment, press Enter on the remote for TV playback; on a computer, click once to highlight a thumbnail and read the accompanying text description and click again to start the video.

**Curriculum Units**— These are specially edited video segments pulled from different sections of the video (see below). These nonlinear segments align with key ideas in the unit of instruction. They include onscreen pre- and post-viewing questions, reproduced below in this Teacher's Guide. Total running times for these segments are noted. To play a particular segment, press Enter on the TV remote or click once on the Curriculum Unit title on a computer.

**Standards Link**— Selecting this option displays a single screen that lists the national academic standards the video addresses.

**Teacher Resources**— This screen gives the technical support number and Web site address.

### *Video Index*

### *Curriculum Units*

