

CLASSROOM ACTIVITY

Lemurs of Madagascar: Surviving on an Island of Change

When humans first set foot on Madagascar 2,300 years ago, there were 70 species of lemurs living in the island's verdant forests. Over time, logging and agriculture cleared the forests, leaving the island with a bare interior and just two strips of forest on the coasts. As their habitats dwindled, many species of lemurs became extinct; others became endangered.

CLASS DISCUSSION

Establish Prior Knowledge

Ask students what they know about the island of Madagascar. If necessary, have them locate it on a map. Tell students that until about 2,000 years ago, humans did not live on the island of Madagascar, but since arriving have changed the landscape drastically. Ask students to consider what effect rapid habitat change can have on native animals.

Exploration

Have students watch the video and read the feature story, "Lemurs of Madagascar: Surviving on an Island of Change." Use the following questions to guide a class discussion:

- Why is Madagascar such a good place to study evolution and habitat change?
- What changing conditions has led to some species of lemurs becoming extinct.
- Why are lemurs with more specialized diets more vulnerable to habitat change? How is having a more general diet helpful for survival?
- What is habitat fragmentation and what are researchers trying to do to prevent it?
- What is adaptive radiation and how has it led to the survival of some lemur species?

Wrap-Up

Use the following questions to wrap up your discussion:

- What are some other areas of the world that are experiencing rapid habitat change?
- What species in those areas are threatened?

The Scientific Method

Research scientists use the Scientific Method (see page three) to investigate the natural world. You can use *Lemurs of Madagascar* to illustrate methods that scientists use to gather observational data. In this feature, scientists collect field data about the effects of habitat destruction of different species of lemur in Madagascar.

CLASSROOM ACTIVITY

Lemurs of Madagascar (continued)

Extend

Students who wish to learn more about the animals of Madagascar can visit these related links from NASA:

Earth Observatory: Uncovering Chameleons

<http://earthobservatory.nasa.gov/Study/Chameleons/>

Learn about Madagascar's rich and unique biodiversity, and the efforts being made to preserve it.

Earth Observatory: The Human Footprint

<http://earthobservatory.nasa.gov//Study/footprint/index.html>

Data on land cover is an important tool in understanding the spread of life on Earth. See how scientists are learning about the impact of human development on the land.

Scientists Use Satellites and Museum Collections to Locate Lizards in Madagascar

<http://www.nasa.gov/vision/earth/livingthings/lizards.html>

See how a computer model is helping scientists predict species distribution in Madagascar.

Earth Observatory: New Tools for Conservation

<http://eobglossary.gsfc.nasa.gov/Study/Conservation/conservation.html>

Examine the various tools and techniques of observing and tracking habitats.

Windows to the Universe: Ecosystems

<http://www.windows.ucar.edu/tour/link=/earth/ecosystems.html>

Get an overview of ecosystems from the National Corporation for Atmospheric Research Windows to the Universe website.

Scientific Process

The Scientific Method is a dynamic and open-ended process that scientists use when they investigate a question they have. It is not a series of prescribed steps that scientists follow to prove a hypothesis. Rather, it's a general plan that helps guide their investigation. And while all scientists use the Scientific Method, they might not use all the steps, or they may complete the steps in a different order. For example, a scientist might make observations and collect data about a subject that interests him or her for years before formulating a hypothesis.

DEFINING A QUESTION TO INVESTIGATE

As scientists conduct their research, they make observations and collect data. The observations and data often lead them to ask why something is the way it is. Scientists pursue answers to these questions in order to continue with their research. Once scientists have a good question to investigate, they begin to think of ways to answer it.

FORMING A HYPOTHESIS

A hypothesis is a possible answer to a question. It is based on: observations scientists make, existing theories, and information they gather from other sources. Once they have a hypothesis, scientists can begin to think about how to test it.

TESTING A HYPOTHESIS

Evidence is needed to support or disprove the hypothesis. There are several strategies for collecting evidence. Scientists can gather their data by observing the natural world, performing an experiment in a laboratory, or by running a model. Scientists decide what strategy to use, often combining strategies. Then they plan a procedure and gather their data. They make sure the procedure can be repeated, so that other scientists can evaluate their findings.

ANALYZING THE DATA

Scientists organize their data in tables, graphs, diagrams, and even photographs. If possible, they check the data by comparing it to data from other sources. They are looking for patterns that show connections between important variables in the hypothesis they are testing.

DRAWING CONCLUSIONS

Scientists must decide whether the data clearly support or do not support the hypothesis. If the results are not clear, they must rethink their procedure. If the results are clear, scientists write up their findings and results to share with others. The conclusions they draw usually present new questions for them to pursue.