Follow-up Discussion

The most important part of this segment is to examine both the facts and beliefs generated by the class in their "Everything We Know About…" list. Research indicates that students will retain their previous misconceptions — in preference to the new information — until they actively recognize and correct their own errors. Because of this, it is important to lead students to the correct ideas while identifying and correcting any misconceptions from the class list. After reviewing the list, encourage students to share the answers they got to the questions raised, before viewing the program.

Raising a thought-provoking question is a good way to assess the overall depth of student understanding. A couple of suggestions are listed below:

- How do land formations of the Earth change over time?
- What are some of the different land formations found on the Earth's surface? Compare and contrast these land formations.

Follow-up Activities

- Students can use shaving cream to create specific land formations, like mountains, islands or plateaus. Students can discuss how the features of these land formations differ.
- Students should select a famous land formation from somewhere in the world, such as Mount Everest, the Hawaiian Islands, the Sahara Desert or the Grand Canyon. Students can research their landform and design a travel brochure that would entice travelers to come visit. These brochures should include drawings and key information about the particular land formation.
- Weathering plays a significant role in the development of land formations, and students can model the effects of these forces right in the classroom. Have students predict what will happen when water is poured on different substances, such as a mound of sand, dry potting soil, rock or a block of sod. Place a sample of each substance in a bowl and pour water on it from a watering can or a cup with small holes in the bottom. Encourage students to observe and record what happens to each sample, and discuss how this model compares weathering in real life.

Suggested Internet Resources

Periodically, Internet Resources are updated on our Web site at www.LibraryVideo.com

- **www.geo.umn.edu/people/grads/gcatania/antarctica/lesson5.htm**
  "Real Glaciers Eat Rocks" is a page from the Glacier Project Website developed by Rice University to explain how glaciers slowly transform landscapes.

(continued)

- **www.athena.ivv.nasa.gov/curric/land/landform/landform.html**
  Athena, part of NASA's Learning Technologies Project, provides Earth and Space Science information for students and teachers. This page offers images of many different types of land formations found on the Earth's surface, in addition to a teachers' overview of the material and activities for students.

Suggested Print Resources

- Farndon, John. *How the Earth Works*. Reader's Digest, New York, NY; 1992.
- Peacock, Graham and Jill Jesson. *Geology*. Thomson Learning, New York, NY; 1995.
- Peters, Lisa Westberg. *The Sun, the Wind, and the Rain*. Holt, New York, NY; 1990.
- Simon, Seymour. *Mountains*. Morrow, William & Company, New York, NY; 1997.
- Zoehfeld, Kathleen Weidner. *How Mountains Are Made*. HarperCollins, New York, NY; 1995.

TEACHER'S GUIDE CONSULTANT

Conrad M. Follmer

25 years as a K–5 Science & Math coordinator for a Pennsylvania public school system, currently an independent consultant to elementary schools.

TITLES

- **ALL ABOUT EARTHQUAKES**
- **ALL ABOUT EARTH'S HISTORY**
- **ALL ABOUT FOSSILS**
- **ALL ABOUT LAND FORMATIONS**
- **ALL ABOUT NATURAL RESOURCES**
- **ALL ABOUT ROCKS & MINERALS**
- **ALL ABOUT SOIL**
- **ALL ABOUT VOLCANOES**
- **ALL ABOUT THE WATER CYCLE**
- **ALL ABOUT WEATHERING & EROSION**

Teacher's Guides Included and Available Online at:

libraryvideo.com

800-843-3620

SCHLESSINGER MEDIA — A DIVISION OF LIBRARY VIDEO COMPANY

7/03 K7059

Earth Science for Children™

All About Land Formations

Grades K–4

This guide is a supplement, designed for educators to use when presenting this program in an instructional setting.

Before Viewing: Research in learning suggests that it is important for the teacher to discover what the students know — or think they know — about a topic, at the start of a new unit, so that their accurate conceptions can be validated and reinforced, and their misconceptions identified and corrected. Therefore, after reviewing the pre-viewing discussion questions provided for your class, create an "Everything We Know About…" list. Preview key vocabulary words and have students raise additional questions they hope will be answered by this program. Most importantly, students should be told that as "science detectives" they must listen closely, so that after viewing the program, they will be able to tell whether or not the facts/beliefs they put on their list were scientifically accurate.

After Viewing: After a brief discussion about the program, challenge your "science detectives" to prove or disprove the accuracy of the facts they put on their "Everything We Know About…" list. Discuss what else they learned and use the follow-up questions and activities to inspire further discussion. Encourage students to research the topic further with the Internet and reading resources provided.

SCHLESSINGER SCIENCE LIBRARY

Program Summary

Land formations are the different shapes, sizes and elevations of the Earth's surface that are constantly changing. The Earth's largest land formations are mountains, which are made of rock and rise far above the surrounding land. They can stand alone, surrounded by lower land, or they can be part of a group of mountains called a mountain range. Other land formations that rise up from the flatter, surrounding land are called mesas and buttes. A mesa resembles a table, because it is a flat-topped stretch of land, rising up with steep sides. Buttes are shaped like mesas, only smaller.

Large stretches of flat land on Earth are called plains. Low, flat plains near oceans are usually very good for growing food crops. Inland plains at higher elevations are called plateaus. When flat lands get very little rain, they can become deserts where few plants can grow. Deserts are usually covered with rocks or blowing sand. Other land formations exist where land meets water. Islands are landforms that are totally surrounded by water and can be found alone or in groups called island chains. Another land formation near water is a peninsula, which is surrounded by water on three sides.

On the land, flowing water constantly creates and reshapes land formations. Mountain streams, created by melting ice and snow, combine as they rush downhill, washing away soil and rocks as they travel. Over time, this flowing water carves out mountain valleys and canyons. Valleys can be wide and shallow, or they can be steep and V-shaped. Valleys with very steep sides are called canyons. Rivers carry large amounts of soil, sand and rocks in their flowing waters. When a river meets the ocean, the water slows down and much of the load it has been carrying is deposited, creating new land called a delta. The deposits that create deltas are often rich with minerals, making excellent new land for farming.

Other forces such as rain, wind and ice are part of the Earth's natural process of reshaping the land as well. Weathering is the process that wears away rock surfaces, breaking them into smaller pieces. Erosion is the natural process of carrying weathered pieces of rock away to other locations. Even the highest of Earth's mountains are being slowly weathered and eroded away — a process that could take millions of years. Another major force responsible for reshaping the land is the glacier. In very cold regions, snow falls over many years and does not melt, building deeper and deeper, and packing down to form huge masses of heavy ice. These giant, thick, moving sheets of ice slowly travel downhill, carving away everything in their path. They have created mountain valleys and have even carved fjords in bays, which are steep-sided cliffs that allow the ocean to travel deep inland. All of the Earth's land formations are fascinating and are constantly being shaped by the forces of nature.

Vocabulary

The following words are included for teacher reference or for use with students. They are listed in the order in which they appear in the video.

land formations — Natural features that make up the Earth's surface. Some land formations are created by activity deep within the Earth, while others develop by the action of wind, water and ice.

continents — Large, extensive landmasses that make up most of the land on the Earth's surface. There are seven continents on Earth.

mountains — Natural land formations with steep slopes and a peak that rise above the surrounding land.

mesas — Large, table-like landforms.

buttes — Table-like landforms like mesas, but smaller in size.

plain — A wide area of flat land.

plateau — A wide area of flat land found far above sea level.

desert — An area of land that gets very little rainfall during the year.

islands — Land formations that are completely surrounded by water.

peninsulas — Land formations that are surrounded by water on three sides.

rivers — Flowing bodies of water that can cause changes in land formations.

streams — Flowing bodies of water smaller than rivers that can cause changes in land formations.

valleys — U- or V-shaped, low areas of land with sloping sides, created by moving rivers or glaciers that wear away the land.

canyons — Deep valleys with steep sides, created by rivers cutting through rock.

delta — A large area of fertile land at the mouth of a river where deposits of eroded materials build up.

weathering — The breaking of rock into smaller pieces by water, wind and ice.

erosion — The moving of rocks and soil to other places.

fjords — Very steep-sided bays, where fingers of ocean water reach far inland. Fjords are usually carved out by glaciers.

glaciers — Large masses of moving ice that can dig out huge valleys as they move.

Pre-viewing Discussion

Before students generate their list of "Everything We Know About…" this topic, stimulate and focus their thinking by raising these questions so that their list will better reflect the key ideas in this show:

- What land formations can you name?
- What are land formations?
- What causes the land formations on Earth to be constantly changing?

After the class has completed their "Everything We Know About…" list, and before watching the show, ask them what other questions they have that they hope will be answered during this program. Have students listen closely to learn if everything on their class list is accurate and to hear if any of their own questions are answered.

Focus Questions

You may wish to ask your class the following questions to assess their comprehension of key points presented in the program:

1. How much of the Earth is covered by land? By water?
2. What are continents?
3. Have we always had seven continents? Explain.
4. What are mountains?
5. Describe mesas and buttes. How are they similar and different?
6. What are plains? What is special about many plains?
7. What is a plateau?
8. Without rain, plains and plateaus can be turned into what other land formation? Why does this happen?
9. Describe islands and peninsulas. How are they similar and different?
10. How do rivers and streams change land formations?
11. How is a delta created? Why are many deltas special?
12. Describe valleys and canyons. How are they similar and different?
13. What are glaciers? How do glaciers change land formations?
14. Describe the forces of weathering and erosion.