The Great Rift Valley

The Great Rift Valley stretches from Southwest Asia through Africa. The valley is a long, narrow trench: 4,000 miles (6,400 km) long but only 30–40 miles (48–64 km) wide. It begins in Southwest Asia, where it is occupied by the Jordan River and the Dead Sea. It widens to form the basin of the Red Sea. In Africa, it splits into an eastern and western branch. The Eastern Rift extends all the way to the shores of the Indian Ocean in Mozambique.

A Crack in the Earth Most valleys are carved by rivers, but the Great Rift Valley is different. Violent forces in the Earth caused this valley. The rift is actually an enormous crack in the Earth’s crust. Along the crack, Africa is slowly but surely splitting in two.

Scientists explain rift valleys by the theory of plate tectonics, the idea that the Earth’s crust lies on enormous plates. These plates slide over a layer of partially melted rock, much like rafts floating on water. When two plates collide, they crunch together with tremendous force, pushing the land up and creating mountains. When two plates pull apart, they create a rift, or crack, in the land. As the plates move away from each other, chunks of the Earth’s crust collapse into the space between the plates, creating a rift valley. To picture this, imagine how the roof of a house might collapse if the walls were moved apart.

Two plates pulling apart can rip a continent in two. Eventually, ocean waters rush in, and the floor of the valley becomes the bottom of a new sea.

The Great Rift Valley is the most extensive rift on the Earth’s surface. For 30 million years, enormous plates under­neath Africa have been pulling apart. Large earthquakes have rumbled across the land, causing huge chunks of the Earth’s crust to collapse.

Year after year, the crack that is the Great Rift Valley widens a bit. The change is small and slow—just a few centimeters per year. Scientists believe that eventually the continent will rip open at the Indian Ocean. Seawater will pour into the rift, flooding it all the way north to the Red Sea.
Environmental Case Study
continued

Sea. A new sea will be formed, and Africa will be split in two.

A Dramatic Place Many people consider the Great Rift Valley to be one of the most dramatic and beautiful places in the world. The valley has a flat floor and steep sides. In some places, the sides of the valley are cliffs more than 9,000 feet (2,700 m) high. In other places, the sides form giant steps, like an enormous staircase.

The Great Rift Valley holds chains of large lakes, some of them among the deepest lakes on Earth. Many of the mountains near the rift are dormant volcanoes. The volcanoes benefit the many people who live there. The fertile volcanic soil is good for growing crops. The volcanoes also bring tourists and money to the region. Mount Kilimanjaro, a dormant volcano 100 miles (160 km) from the Eastern Rift, is the highest peak in Africa (19,340 feet [5,895 m]). Each year thousands of people flock to Kilimanjaro to try to climb its spectacular peak.

Violent Earth The Earth’s crust has been stretched very thin in the Great Rift Valley. Not all of the volcanoes are dormant. Active volcanoes and abundant hot springs reveal that hot magma lies just underground. The magma easily finds its way out. In 2002 lava from Mount Nyiragongo largely destroyed the city of Goma, leaving thousands of people homeless. The volcano continues to erupt to this day.

Scientists continue to study the Great Rift Valley and the movement of plates beneath its surface. They hope to learn more about the forces that threaten to tear Africa in two.

It's a Fact

1. Lake Tanganyika along the Great Rift Valley is the longest freshwater lake on Earth. It is also one of the deepest lakes in the world. Hippopotamuses and crocodiles swim in its waters.

2. Mount Kilimanjaro is famed for its snow-covered peak. Europeans first learned of Mount Kilimanjaro after two German missionaries saw the mountain in 1848. People in Europe initially did not believe that a snowcapped mountain could be located so close to the Equator.

3. Today the snows of Kilimanjaro are melting fast. The mountain has lost more than 80 percent of its ice since 1912. Global warming may be causing the ice to melt. Some scientists think all of the ice on Kilimanjaro will be gone within the next few decades.
The Great Rift Valley has been a treasure trove for scientists studying human evolution. Within part of the rift, known as the Awash River Valley in Ethiopia, scientists have discovered the oldest remains of humans and human ancestors.

The most famous discovery came in 1974, when scientists looking for fossils stumbled upon ancient bones. The researchers unearthed enough bones to reconstruct the skeleton of Lucy, a 3.5-foot-tall human ancestor. Scientists have learned much about human evolution by studying Lucy.

Scientists working in the Awash Valley also have discovered the oldest evidence of tool use. Early humans made tools from obsidian, a volcanic glass found throughout the rift.

The natural forces at work in the Awash Valley have helped scientists unearth these finds. Movement of plates and heavy erosion of the soil have made it much easier for scientists to excavate fossils.

Review the Facts

Directions: Read the information about the Great Rift Valley and examine the map. Then answer the following questions.

1. Naming What are three bodies of water that occupy the Great Rift Valley north of Africa?

2. Explaining How was the Great Rift Valley formed?

3. Describing What are some physical features of the Great Rift Valley?

4. Explaining Why are hot springs abundant in parts of the Great Rift Valley?

5. Summarizing How do volcanoes in the Great Rift Valley benefit the people who live there?
Environmental Case Study
continued

Create a Brochure for Tourists

✓ For Investigation

Many locations along the Great Rift Valley have been named World Heritage Sites by the United Nations Educational, Scientific, and Cultural Organization (UNESCO). Research one of these sites. A good place to start is the Web site for the World Heritage Centre (whc.unesco.org). Click on the interactive world map to zoom in on Africa. Then click on any of the dots that line the Great Rift Valley to learn more about a World Heritage Site.

After you have completed your research, create an educational brochure advertising your World Heritage Site. Your target audience will be tourists who might want to visit your country. Your goal will be to convince them to visit.

What to Do

1. Choose one World Heritage Site that is located along the Great Rift Valley. Gather information about this location. Why did UNESCO choose it as a World Heritage Site? Where in Africa is it located? What is the climate like? What types of plant and animal life does it support? Describe the human geography.

2. Create a brochure showing what you have learned. Make the brochure interesting so that prospective tourists who see it will want to visit the site. Your brochure should include several paragraphs of text as well as visuals. For example, you might show drawings or photographs of the animals or geographic features at the site. Include a map of Africa showing where the site is located. Discuss the climate, native plants and animals, and any unique attractions that may appeal to tourists. Include information about UNESCO's World Heritage Sites, and explain why this location was chosen as a site.

Assessment Checklist
Assess your brochure using the checklist below:

- [ ] Highlights a World Heritage Site located along the Great Rift Valley
- [ ] Explains why the location qualifies as a World Heritage Site
- [ ] Includes a map showing the location of the site
- [ ] Is engaging, with interesting and accurate descriptions
- [ ] Shows important aspects of the site through photos or drawings
- [ ] Includes background information about UNESCO's World Heritage Site program
- [ ] Is well organized and logically developed

Materials
- access to a library and/or the Internet
- student journals or lab notebooks
- drawing materials