Contents

A Word to the Teacher

What a time to study Earth! As the race to save our physical world gathers momentum, concerned groups and individuals are focussing their attention on the big picture: how was Earth formed and how can we protect it from further human-made destruction?

The questions aren't strictly academic anymore. After all, our chance of survival may depend on an understanding of the basic principles and forces at work.

Humans have the power to preserve and protect Earth, as well as to completely change or destroy the natural environment. In addition, Earth itself displays both creative and destructive forces. Deep within Earth, high temperature and great pressures have the power to put entire civilisations at risk. Consider, for example, Pompeii in A.D. 79 when an avalanche of ashes, pumice and volcanic mud brought complete ruin to prosperous Roman towns. Or consider the more recent eruption of Mount St. Helens and the impact it has had on the surrounding area.

One way to learn about Earth is to study her rocks; examine her minerals. They are obvious clues to what our Earth was like a long time ago and what may become of her many years from now.

Unit Objectives

- To understand the formation of rocks and mineral
- To distinguish the main rock and mineral categories and the variety within those categories
- To appreciate the importance of rocks and minerals in human lives
- To gain a historical perspective on rocks and minerals
- To appreciate rocks and minerals from an artistic perspective

Interest Development Centre

Rocks and Minerals

The purpose of this interest development centre is to stimulate students to learn more about the topic under study. Students need time for browsing and investigating for maximum benefit. These are beginning ideas. You and your students will think of more. Ask your students to bring in items from home. Let parents and other teachers know more about the centre, and it will grow without effort.

Useful items:

Maps, globe, atlas (especially for studying earthquake and volcanic activity)
Everyday products made from rocks and minerals
Various rocks and minerals
Microscopes and magnifying lenses
Jeweller's tools
Mining equipment (pan for gold, for example)
Jewellery (examples of birthstones)
Materials for earth-science experiments
Styrofoam, wood and recycled materials from which cutaway displays of Earth's crust can be made
Periodic table of elements
Model of human body

Books, Videos, Slides, Posters About:

Volcanoes
Earthquakes
Glaciers
Continental drift
Victorian gold rush
Mining techniques
Caves
Gems
Seismographs
Major earthquakes
Pompeii
Offshore drilling
Piracy
Lapidary arts
Life in mining camps, tall tales and folk songs
Vitamins and the human body
Topography
Chemistry
Crystals
Earth-science experiments
Myths
Medicine
Food and nutrition
Famous gems (such as the Cullinan or Star of Africa diamond)

Simulations

Simulations are pretend journeys into the past or future that students love because it feels as if they're really there. Allow the *Rocks and Minerals* unit to trigger a variety of side themes. A trip back to pirate days, for example, where booty was prized on the high seas, might provide an exciting scenario from which your class can pursue the subject of rocks and minerals.

The Victorian and New South Wales gold rushes, the Mayan culture and explorers in search of treasure are other themes that might work well with your class. Or, if you prefer, try staging a famous jewel robbery from a well-known museum. Your class will have as much fun learning about rocks and minerals as finding out 'whodunit' in your simulated mystery scenario.

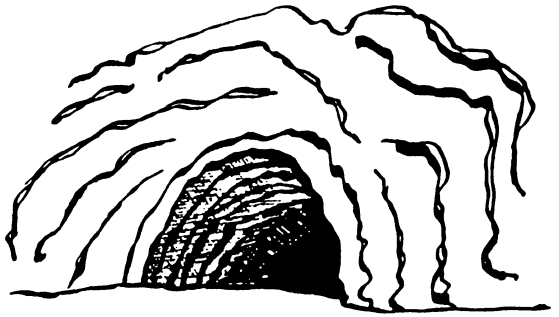
Guest Speakers

Students who might seem to have short attention spans often will listen intently to 'experts' who speak to your class. Invite a jeweller or an avid rock collector into your classroom and watch interest mount. Another guest speaker who is bound to inspire students is the parent whose family heir-looms are suitable for your study of rocks and minerals. The tale of how a ring, silver coin or necklace was passed down through generations will fascinate students.

Excursions

Gems of the Earth carved with skill and imagination are proudly displayed in lapidary art museums and are well worth the trip to see them. Another place on your excursion list might be a collector's shop with coins and rocks. And don't forget antique shops! They're an ideal place for stimulating students' imaginations. Top off these trips with student-written fiction and your class will have a wonderful collection of its very own.

1. Setting the Stage



Earth is probably about 4,500 million years old. The oldest rocks are much younger — only about 3,500 million years old. For the first people, our early ancestors, rocks and minerals were very important. Rocks were used as weapons, people lived in rocky caves and stones became tools.

- ✦ Draw a picture of what you think an early weapon, tool or cave looked like and then find a picture of it in a book.

Today we still need the rocks and minerals that our Earth provides us.

- ✦ List five ways we use rocks and minerals today.

2. Our Changing Earth

At one time there was one large continent known as Pangaea. Over time, this broke apart and became many smaller continents. Do you know which continent you live on?

- ✦ Cut out the shapes of the continents from a photocopied map and piece them together.

- ✦ Why do you think Pangaea split up?