GEOSAFARI®

SEDIMENTARY ROCK COLLECTION

Guide

Before You Begin

Locate the sheet of 12 stickers included in this rock box. Peel off each sticker and apply it to the smoothest part of each rock. The rocks have been packed in the box in the order they appear on the inside box lid: (1) siltstone, (2) sandstone, (3) rock salt, (4) coal, (5) limestone, (6) arkose, (7) conglomerate, (8) fossiliferous limestone, (9) mudstone, (10) shale, (11) travertine, and (12) rock gypsum. If the rocks get mixed up, refer to this guide or the box lid so you can always identify them.

Sedimentary Rocks: Bits and Pieces

Sedimentary rocks are formed from sediment. Sediment consists of soil, sand, mud, and pieces of rock or shell. Sediments are geologic travelers. Wind, water, and ice move the sediment over the surface of the Earth. When sediment finally clumps together and then slowly hardens, sedimentary rock is formed.

Here's one example of how sedimentary rock is formed: A river carries sediment as it flows toward the sea. As it nears the sea, the river slows and the sediment sinks to the riverbed. The heaviest pieces sink first. Then the next heaviest pieces sink, covering the first layer. Layer by layer the sediment builds until the layers slowly squeeze together over time to form rock. This process doesn't happen quickly. It can take millions of years!

Rocks, gravel, and sand aren't the only things that form sedimentary rock. Shells, mud, and pieces of fish bone also form this type of rock. Some sedimentary rocks even contain the preserved remains of dead plants and animals called fossils. If you want to find fossils, a sedimentary rock bed is a great place to start searching.

⚠ WARNING:
CHOKING HAZARD—Small parts.
Not for children under three (3) years.

Educational Insights®

Let's Look at Your Sedimentary Rocks

Siltstone

Siltstone forms when many layers of silt are pushed together over time. Silt is like sand but made up of even tinier particles. The minerals that make up siltstone are too tiny to be seen without a microscope.

Sandstone

Sandstone is a common sedimentary rock. It is used to make buildings and sharpen tools. Unlike limestone, which is made of the remains of living things, sandstone is made of sand. Fine and coarse grains of sand are held together by a natural cement.

Rock Salt

Rock salt forms from the evaporation of salty water. Most rock salt is mined for humans to eat because we need salt to live. Rock salt is also put on the roads in cold climates to prevent snow from freezing into sheets of ice.

Coal

Coal is an organic material formed from marsh plants that died millions of years ago. When the plants died, they sank into the marsh water and decayed. After a long while, they were covered by fallen leaves and many layers of sediment. Over many millions of years, this sediment turned into coal. Coal is an inexpensive source of energy.

Limestone

Limestone is another common sedimentary rock. When sea animals die, their shells and bones form layers of sediment on the ocean floor. The buildup of sediment forms limestone. Lime, concrete, cement, and plaster are all made with limestone.

Arkose

Arkose is mostly made up of quartz and feldspar particles with smaller amounts of mica. It forms in marine and freshwater environments. This reddish-brown rock was once used as a "brownstone" building stone because of its attractive color and hardness.

Conglomerate

Conglomerate, meaning "formed together," is made of pebbles that are naturally glued together. The material that holds them together is called *matrix*. The pebbles in conglomerates are usually quartz or quartzite.

Fossiliferous Limestone

Fossiliferous limestone is a limestone formed from fossilized shell fragments deposited in swamp-like areas. The shells are held together by a natural cement called *silica*.

Mudstone

Fine-grained mudstone, like sandstone, is formed from the broken down pieces of older rocks that are transported by water, wind, ice, or gravity and deposited as sediment. Usually the sediment is transported by streams and settles in streambeds or on the edges of slow-moving rivers.

Shale

Shale is formed when tiny particles of mud and clay sink to the bottom of rivers and slowly harden. Many animal and plant fossils can be found within the layers of mud and clay. One difference between shale and mudstone is that shale splits easily into layers.

Travertine

Travertine is commonly formed in spring water, which contains the mineral calcite. It is formed when the spring water evaporates. Therefore, travertine contains a lot of calcite. The Colosseum in Rome is constructed largely of travertine.

Rock Gypsum

Rock gypsum is formed from the evaporation of salt water. It is a very important building mineral. Rock gypsum is the main ingredient of plaster of Paris and it is used to make cement, drywall, and fertilizer.

Tips for Rock Hounds

Your rock collection may be the beginning of a life-long hobby. Here are some tips that will help you in your search for rocks.

Respect the environment.
Many rock hounds today don't collect the actual rocks they find. Instead, they collect the information they gather from the rocks.

Why? In many places people have removed so many natural parts of the environment that other parts—living parts—suffer. Taking rocks from some places may mean destroying a home for plants and animals. If you're not sure it's okay to take a rock, take notes instead. Better yet, take a photo, too!

Once you begin investigating rocks, you will probably collect quite a lot of information. Here are a few ideas to keep you and your rock information organized:

Carry a notebook when you're out looking for rocks.
It's not enough to just find a rock. You also need to be able to write down important information about your find. This information might include:

- where and when you found the rock
- information about other rocks in the same location
- a picture of your find and a description, including its colors, shape, size, and any other information you discover by looking at it

Give each rock in your collection a number.
It is important to keep your rock information organized. Here's how:

1. Give each rock a reference number. You will use this number to keep track of all the information about this rock.
2. Dab a small spot of white hobby paint or correction fluid on a rock. When it dries, write a small number on the spot.
3. Write the reference number on an index card. Then write the type of the rock and any information you have collected about it. Keep your index cards alphabetized in a recipe file.

Protect your samples.
You can buy more trays or even build them yourself out of wood or cardboard. Egg cartons also make great containers for storing rock samples. If possible, let each sample sit on a sheet of cotton to protect it.

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