## **Rocks From Reefs**

Coral animals are tiny relatives of jellyfish that live together in vast numbers. They produce skeletons that grow together to form a structure called a coral reef.

Tiny algae grow within the body of each coral animal. The algae provide substances that the coral animals need to live. Like plants, algae need sunlight. For this reason, reefs form only in the warm, shallow water of tropical oceans. Almost all growth in a coral reef occurs within 40 meters of the water's surface.

A coral reef is like a living rock built by tiny creatures. How is the rock built? Coral animals absorb the element calcium from the ocean water. Their bodies combine the calcium with carbon and oxygen to form an exo-skeleton made out of calcium carbonate (CaCO<sub>3</sub>). When coral animals die, their skeletons remain. More corals build on top of them, gradually forming a coral reef. Over thousands of years, reefs may grow to be hundreds of kilometers long and hundreds of meters thick. The type of rock that the coral skeletons build is called limestone.

Limestone has been forming in Earth's oceans for more than 400 million years. Limestone deposits that began as coral reefs provide evidence of how Earth's surface and environment has changed. Limestone that formed when shallow seas covered the low-lying parts of the continents may have become exposed when the seas retreated. When geologists find fossils of an ancient coral reef, they know that the location once was an area that had a warm climate and shallow ocean water.

Identifying fossilized reefs is fairly easy to do. When a drop of dilute hydrochloric acid is placed on a piece of limestone, the acid reacts with the calcium carbonate (CaCO<sub>3</sub>) to form bubbles of carbon dioxide. This "fizz" reaction is so characteristic of limestone than many geologists carry a small bottle of dilute hydrochloric acid into the field for a rapid and easy identification of limestone. We can watch the same reaction here in class!

## **Reflection Questions:**

1. How do coral reefs form? \_\_\_\_\_

2. What evidence do limestone deposits from coral reefs provide about Earth's history?

3. Describe the reaction between coral (CaCO<sub>3</sub>) and hydrochloric acid (HCI):

4. What can you ASSUME will happen any time that CaCO<sub>3</sub> and HCl are combined?

Read the article and text code it as you read:

Highlight important facts.

 $\frac{1}{100} = \text{Important}$ information

? = I don't understand or have a question

! = WOW!

Answer "Reflection Questions" #1 and #2 using complete sentences (of course!).

AFTER you watch the demonstration, answer questions #3 and #4. Read/highlight the article. Draw the diagrams in the left-hand column. Answer the questions below using information from the article.



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