

CAN STONES DISSOLVE?

A. Question: How can we differentiate between minerals?

B. Materials Needed:

1. Pieces of limestone, marble, granite.
2. Vinegar or dilute hydrochloric acid.

C: Procedure:

1. Observe the pieces of limestone, marble and granite. Ask: "How do they differ? How do we know which is which?"
2. Place a few drops of vinegar or dilute HCl on a flat surface of each of the rocks and observe for chemical reaction.
3. Let stand for a few minutes, then place again a few drops of acid on each of the rocks. Ask: "Which one reacted most?"
4. Scratch the surface of each of the stones with the fingernail or a pen knife. Ask: "Which one is the softest? Which the hardest?"

D: Anticipated Results:

Students should be able to observe the difference between the minerals utilizing vinegar and scratching devices.

E: Thought Questions for Class Discussion:

1. How can we distinguish which stone is which?
2. What are the characteristics of each of the stones?
3. Which of the stones would be eroded most when subjected to the same erosive forces in nature?
4. How would you tell the difference between common salt and marble?
5. What other methods are geologists using to identify minerals?

F: Explanation:

The limestone is the softest of the three and granite the hardest. Limestone can most likely be scratched by the human fingernail (number 4 in the hardness scale), whereas the other two cannot. Limestone reacts most with the vinegar or dilute hydrochloric acid. Marble does react with the acid, but not as readily, because of its more compact structure. Chemically they are the same (calcium carbonate). Other methods that geologist use to identify minerals are: breaking the rock and observing the crystal structure with magnifying glasses or microscopes.