Weathering (sedimentary)

Objective:
To observe changes in materials when exposed to the elements..

Materials:
Two pieces of steel wool
Two plastic containers one with a lid
A piece of paper and pen or pencil to record your observations

Sample Chart:

Steel Wool Descriptions			
Date	Inside	Outside	Weather Conditions
Aug 13	Black & silver	Black & silver	Sunny, Warm, 81
Aug 14	Dry, black &silver	Wet ,black & silver	Cloudy, rain, 76
Aug 15	No change	Brown spots on top of the steel wool and on side of the cup. Water in the bottom of the cup looks rusty	Overcast, 80, slight wind
….			
Aug 29	No change	Very rusty	Sunny and humid
Sept 4	No Change	Crumbles apart	Sunny and windy

This project is made possible by a Faculty Innovation Grant from Seton Hall University.
Please contact Martha Schoene at schoenma@shu.edu with any questions.

August 29, 2004-Outside VS Inside

Procedure:

1. Place each piece of steel wool into an open plastic container
2. Put one container outside in a place where it will be exposed to air and precipitation.
3. Place the other container inside
4. Draw and describe each sample and set up a chart to record your observations
5. Observe each piece of steel wool each day for a month and record your observations
6. At the end of the month compare the two samples and draw and describe the results.

Observation Questions:

1. Describe the changes you observed. The steel wool in the open cup that was placed outside started to rust. There was rain water in the cup.

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2. Compare and contrast the two pieces of steel wool. The steel wool in the cup kept inside showed no sign of change. The steel wool left in the open cup began to show rust spots.

Analysis Questions:

1. What conditions do you think caused the differences between the two pieces of steel wool? The rain (students may give a more detailed explanation of oxidation)
2. What type of weathering did you observe? Chemical weathering - Oxidation Explain why. Parts of the thin treads of the steel wool rusted. Rust has a different chemical composition from steel. "Chemical weathering involves the complex processes that break down rock components and internal structure of minerals. During this transformation the original rock decomposes." In this lab the steel wool decomposed or fell apart leaving rust in the cup.
3. Which piece of steel wool would be the control in this experiment? The steel wool that was kept inside or the one in the cup with a cover on container Explain why..

Follow ups:

Place a third piece of steel wool in a plastic container with a tight fitting lid and place the closed container in the outside location. Check the steel wool in a month. Record the results.

Manipulate other variables like temperature, amount of moisture and observe any changes. (Or repeat the experiment at different times of the year)

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