Rocks Tell a Story

Background

Identifying rocks can be extremely difficult, even for geologists. Proper rock identification depends on the quality of the specimen and on the clarity of its significant characteristics. Through this information, rocks provide clues about the environmental conditions under with they were formed. Geologists use that information to reconstruct an area’s geologic history. This activity will give you an opportunity to study various rock samples, and to suggest probable reasons why certain rocks have certain characteristics.

Throughout this activity, it is important to remember that a rock is a mixture of different minerals. The specific minerals and their relative concentrations – how much of each mineral appears in the rock – are responsible for the rock’s characteristics, including its color, density, and texture.

Keep in mind the three major rock types – igneous, sedimentary, and metamorphic. In general, specimens of the same kind of rock (granite, an igneous rock, or sandstone, a sedimentary rock, for example) will exhibit similarities in characteristics, such as texture, crystal size, color pattern, and density. However, variation in characteristics exist between individual specimens, between different kinds of rocks within the three major rock types, and between the major rocks types themselves. A rock’s characteristics tell geologists about its composition and about the conditions under which it formed.

Procedure

1. From the information provided in the rock-sample set, complete the first two columns of table 1 on the following page.
2. For each rock, record your observations of the specimen in Table 1 on the following page. Pay particular attention to the specimen’s color, density, texture, and other clues as to the rock’s geologic history.

Table 1

|  |  |  |  |
| --- | --- | --- | --- |
| Rock number | Name | Type | Characteristics |
| 1 |  |  |  |
| 2 |  |  |  |
| 3 |  |  |  |
| 4 |  |  |  |
| 5 |  |  |  |
| 6 |  |  |  |
| 7 |  |  |  |
| 8 |  |  |  |
| 9 |  |  |  |
| 10 |  |  |  |

Part 2

1. Now compare specimens 1 and 2. These two rocks are related in some way. How are they similar? How are they different? Compare rocks 3 and 4, rocks 5 and6, rocks 7 and 8, and rocks 9 and 10in the same way. Record your observations in Table 2.
2. For each pair of rocks, suggest reasons for the similarities and differences you recorded in the tables. Write down your thoughts, and be prepared to share your ideas as part of a class discussion.
3. Each pair of rocks are related in some way. What story can you create to explain their relationship? Be prepared to share your story with the class in some form.

|  |  |  |
| --- | --- | --- |
| Rock Pair | Differences | Similarities |
| 1 and 2 |  |  |
| 3 and 4 |  |  |
| 5 and 6 |  |  |
| 7 and 8 |  |  |
| 9 and 10 |  |  |