

Stage 1 Earth and Environmental Science

Mineral and Rock Identification

Purpose of Task

This task provides students with the opportunity to demonstrate their knowledge and understanding of earth and environmental science through the identification of rocks and minerals.

Students test unlabelled samples, record their observations and identify new specimens.

Procedure

Minerals may be identified by testing the following properties: colour, streak, cleavage, hardness, lustre, density, and reaction with hydrochloric acid.

Rocks may be identified by observations of the following properties: texture, grain size and mineralogy.

Results

The results should be recorded in appropriate formats. Diagrams of the minerals should be included.

Discussion

An analysis of the results should lead to a conclusion about the origin of the rocks. Examples of analysis statements include:

- A white mineral that has a hardness of 6 and obvious cleavage can be identified as plagioclase.
- The minerals in the rock are interlocking and the grain size is of igneous origin and formed under the surface conditions.

For each of the rock samples, classify as sedimentary, igneous or metamorphic, and provide a short geological scenario, explaining how it could have formed.

Example:

- This rock is an intrusive igneous rock. It formed in the crust, then spent a lot of time cooling (which explains the coarse grain size). It was then uplifted through the surface of the Earth where a geologist then collected it in the classroom.

Application

Three commonly used minerals in cosmetics are talc, mica and kaolinite.

- Examine samples of each of these minerals and describe the properties of each of these minerals.