Rock and Mineral "Bingo": Applying and Assessing Student Rock and Mineral Identification Skills and Knowledge

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A rock and mineral "Bingo" that is based on knowledge and identification skills (not luck) was developed to help teachers and introductory as well as more advanced-level geology students develop and improve rock and mineral identification skills. The game was designed to use a rock and mineral kit given to students in Lab Classes, but could be adapted for any suite of samples. The rock and mineral kits include 13 mineral samples (olivine, pyroxene, amphibole, biotite, muscovite, potassium feldspar, plagioclase, quartz, galena, gypsum, hematite, pyrite, calcite), 7 igneous rock samples (rhyolite, granite, andesite, diorite, basalt, gabbro, peridotite), 3 sedimentary rock samples (sandstone, shale, limestone), and 5 metamorphic rock samples (slate, mica schist, gneiss, marble, quartzite). The kit also includes a small magnifying glass, a streak plate and a tempered steel nail.

The Bingo Cards

The Bingo cards are composed of 9 squares ("questions") each. A total of 8 groups of questions have been developed to encompass introductory through more advanced levels. The question sets developed so far are: (a) General rocks and minerals; (b) Hardness; (c) Mineral fracture, cleavage, and crystal form; (d) Mineral formulas; (e) Igneous rocks; (f) Sedimentary and metamorphic rocks; (g) General rocks and tectonics; (h) Regional geology, rocks and minerals (MN).

Each square on the card is numbered (1-9). The same cards are used for all question groups. The questions are written on sets of small question cards that are color-coded (according to question set); each question is numbered 1-9. The small cards are pulled out of the 'bag' by the caller, and a large copy of the question is posted for all to see. The players need to choose the sample from their collection that best answers the question or description given by the caller. The questions are set up so that more than one sample may fit an answer, which requires the students to review their choices. The questions are presented relatively rapidly, and the first person or group to win presents their board and samples for the class to examine. They must have the correct sample, and give its name (spelled correctly) to win.

This exercise could be adapted for any collection and any level of learning, as well as for any particular collection or suite of samples. Photos, soils and local rock sequences could also be incorporated.

Preparatory Work

Prior to this activity Students will have practiced mineral identification and learned simple geochemistry. They will also have explored Igneous, sedimentary and metamorphic rock identification, classification and nomenclature, both with samples and in theory. I will have introduced local rock units. I use Rock and Mineral Bingo as a series of culminating review exercises prior to a Lab Exam.

The Rock and Mineral Kit:

Minerals

Olivine, Pyroxene, Biotite, Amphibole, Muscovite, Potassium Feldspar, Plagioclase Feldspar, Quartz, Calcite, Gypsum, Hematite, Pyrite, Galena

Streak Plate

Tempered steel nail

Copper penny

Hand lens

Igneous Rocks

Rhyolite, Andesite, Basalt, Granite, Diorite, Gabbro, Peridotite

Sedimentary Rocks

Shale, Sandstone, Limestone

Metamorphic Rocks

Slate, Mica Schist, Gneiss, Marble, Quartzite

Rock and Mineral Kit available from:
DJ Minerals, Inc, PO Box 761, Butte, MT 59703-0761
phone: 406-782-7339 www.djminerals.com
You can also collect your own, or buy samples from a science classroom supplier