



Rock BINGO and Identification

Description: Students place rock samples on an identification card based on the given description. A leader will then check each identification card. (Rocks are numbered and a key is provided for the leader.) Students will obtain a ROCK bingo card and three small cards (Igneous, Sedimentary, Metamorphic). Mystery rocks will be drawn from a bag and the students must match the rock to a sample they have. Once matched, students will move the rock from the ID card to the correct location on their ROCK bingo sheet. Students will also use the three small cards to identify when a rock is Igneous, Sedimentary, or Metamorphic. When a student has four across, four down, or four diagonal, the student wins a sticker.

Age Group: Upper Elementary (3-8)

Estimated Time: Approximately 20 minutes

Recommended Group Size: 1 - 2 students per group (kit supports 8 groups)

Key Questions: What are the three main classifications of rocks? How are rocks sorted into these classifications? How can you identify a rock?

Content Expectations Addressed:

Inquiry involves generating questions, conducting investigations, and developing solutions to problems through reasoning and observation.

Inquiry includes an analysis and presentation of findings that lead to future questions, research, and investigations.

Reflecting on knowledge is the application of scientific knowledge to new and different situations. Reflecting on knowledge requires careful analysis of evidence that guides decision-making and the application of science through history and within society.

Earth materials that occur in nature include rocks, minerals, soils, water, and the gases of the atmosphere.

Teacher Background:

Igneous rocks are formed when melted rock cools. There are two ways in which this cooling can take place. One is the cooling of volcanic lava above ground forming rocks with very small or no individual crystals on the rock surface. These rocks are classified as EXTRUSIVE igneous rocks. The other method in which igneous rocks can be formed is through the slow cooling of magma below the earth's surface. These rocks are classified as INTRUSIVE igneous rocks and have larger individual crystals easily seen on the surface of the rock.

Sedimentary rocks provided in the kit are formed in two ways. The first way in which sedimentary rocks can be formed is through the compression (and/or cementing) of sediments (or broken up rock fragments). Sedimentary rocks formed using this method are classified as CLASTIC sedimentary rocks. The second way in which sedimentary rocks can be formed is through the precipitation of sediments that were originally dissolved in water. These rocks are classified as CHEMICAL sedimentary rocks. (Note: there are other ways in which sedimentary rocks can be formed. We have only listed the two primary methods that formed the sedimentary rocks in this kit.)

Metamorphic rocks form in two different ways. One way is the application of heat **and** pressure. These are called FOLIATED metamorphic rocks. You can see the layers of a foliated metamorphic rock. The other way in which metamorphic rocks can be formed is to simply heat an existing rock so that the original rock is significantly altered and/or the heat triggers a chemical reaction. These rocks are classified as NONFOLIATED metamorphic rocks. These are a bit like baking chocolate chip cookies. The "dough" can be sedimentary and/or igneous rock; but when cooked, they become NONFOLIATED metamorphic rocks.

Materials: 8 bags with rocks numbered 1-12, 1 cloth bag of un-numbered rocks, 8x3 Identification cards (Sedimentary, Metamorphic, Igneous), 8 ROCK bingo cards, 8 small Igneous cards, 8 small Metamorphic cards, 8 small Sedimentary cards, binder (contains key), and stickers.

Set-Up:

- A. Each station will need:

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- Bag of Rocks
- 3 Identification Cards (Sedimentary, Metamorphic, Igneous)

B. Make sure each bin contains rocks numbered 1 – 12

Procedure:

1. Students will place the rock sample on the ID card that matches the description.
2. Once complete, ID cards will be checked by the leader.
3. Leader will give students a ROCK bingo card and three smaller rock classification cards (Igneous, Sedimentary, and Metamorphic).
4. The leader will then pull an unlabeled mystery rock from the draw bag. Students will use their rock ID sheets to match the rock to a sample they have. The ID cards will give the name and type of rock that was drawn. Students will then move the rock from the ID card to the correct location on the ROCK bingo card.
5. Once they have identified the rock drawn from the bag, ask them how they know for sure what kind of rock it is (most will simply state it matches their rock. You can respond that it isn't the same size. They should then indicate that only the appearance matches. Other conversation can ensue from there.)
6. Once students have identified the rock, ask students what is the classification of the rock. Students will know from the ID card whether the rock is igneous, sedimentary, or metamorphic and can place the card on the ROCK bingo card if they haven't already.

For example: A super shiny black rock is drawn from the bag. Students will note that it matches **obsidian** on their ID card. The student will then move the **obsidian** from the ID card to the ROCK bingo card. They will also notice that **obsidian** is an igneous rock. They can then place their igneous card on the igneous square on the ROCK bingo card.

7. First student with four across, four down, or four diagonal wins a sticker. Students return rocks to the ID cards and remove the 3 rock classification cards. Students can play again as time allows.

Resources:

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