Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_  
Classifying Rocks Investigation

**Background Information**

The earth’s crust, the lithosphere, is made of rocks. Geologists place all rocks in categories or classes, according to the way the rocks were formed. Rocks from each category tend to show characteristics that are the result of the conditions that existed at the time they were formed. Using these characteristics, almost any rock sample can be identified as belonging to one of three classes. (Prentice Hall, 2008) Understanding the different types of rock and how they are formed is an important step in understanding the events that formed Earth.

Construct a diagram or flow map of the “rock cycle” in the space below. In 3 boxes or circles, identify the three types of rocks. Igneous rocks should be divided into “intrusive” and “extrusive”. The characteristics of each rock type should be listed and the conditions for formation should be described. Draw connecting arrows between the rock types and on the arrows explain how the starting rock type can be transformed into the ending rock type. The map must include the following terms: **igneous, intrusive, extrusive, metamorphic, sedimentary, weathering, erosion, deposition, heat, pressure, magma, lava, surface, and depth.**

Log into Discovery Education, Science Techbook, Earth and Space Science, click on **The Rock Cycle** in the Unit: Rocks and The Rock Cycle, click the Explore tab, page 1 and 2. Use the interactive text found in “Explore More Resources” at the bottom of page 2 and videos for information on your diagram.

Prentice Hall Publishers, Earth Science, Englewood Cliffs, New Jersey, 2008

**Characteristics of rocks**

Observe each of the three types of rock provided. In the table below, write “qualitative” observations for each rock type. Qualitative observations are descriptions and quantitative observations are numbers. Also, draw the characteristics of each rock type. Some characteristics to look for would be: texture, color, luster (how shiny or dull it is), stripes or bands, etc. After you have finished, log into Discovery Education, Science Techbook, Earth and Space Science, click on the topic The Rock Cycle in the unit Rocks and The Rock Cycle, click on the Explore tab, choose page 1. Use the interactive text or the video to add to your characteristics.

|  |  |  |
| --- | --- | --- |
| **Rock type** | **Observed characteristics** | **Sketch** |
| **Sedimentary** |  |  |
| **Igneous** |  |  |
| **Metamorphic** |  |  |

**Identification of rock samples**

Use the characteristics that you wrote for each rock type to identify the rock samples around the room.

|  |  |  |
| --- | --- | --- |
| **Rock Number** | **Characteristic properties** | **Type of rock** |
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| 16. |  |  |

**Application & critical thinking: Connecting *Characteristics of Rocks* to *Formation of Rocks***

1. A fossil is the remains or evidence of a once living organism. Explain why fossils are rarely found in igneous or metamorphic rock.
2. Explain why metamorphic rocks often show signs of bending or distortion.
3. Explain why metamorphic rocks are more likely to show bands of color than igneous rocks.
4. Explain why you can often see individual grains in a sedimentary rock but not in an igneous rock.
5. Explain why intrusive igneous rocks often have large crystals.

**TEACHER COPY – Table 2 KEY (check this first!!)**

|  |  |  |
| --- | --- | --- |
| **Rock Number (name)** | **Characteristic properties** | **Type of rock** |
| 1. Conglomerate |  | Sedimentary |
| 1. Quartz |  | Metamorphic |
| 1. Granite |  | Igneous |
| 1. Gneiss |  | Metamorphic |
| 1. Lava rock |  | Igneous |
| 1. Pumice |  | Igneous |
| 1. Gneiss |  | Metamorphic |
| 1. Limestone |  | Sedimentary |
| 1. Plagioclase |  | Igneous |
| 1. Sandstone |  | Sedimentary |
| 1. Schist |  | Metamorphic |
| 1. Obsidian |  | Igneous |
| 1. Lava rock |  | Igneous |
| 1. Conglomerate |  | Sedimentary |
| 1. Shale |  | Sedimentary |
| 1. Gneiss |  | Metamorphic |