

Igneous Rocks Identification



Problem/Question

Name the igneous rock samples provided.

Background:

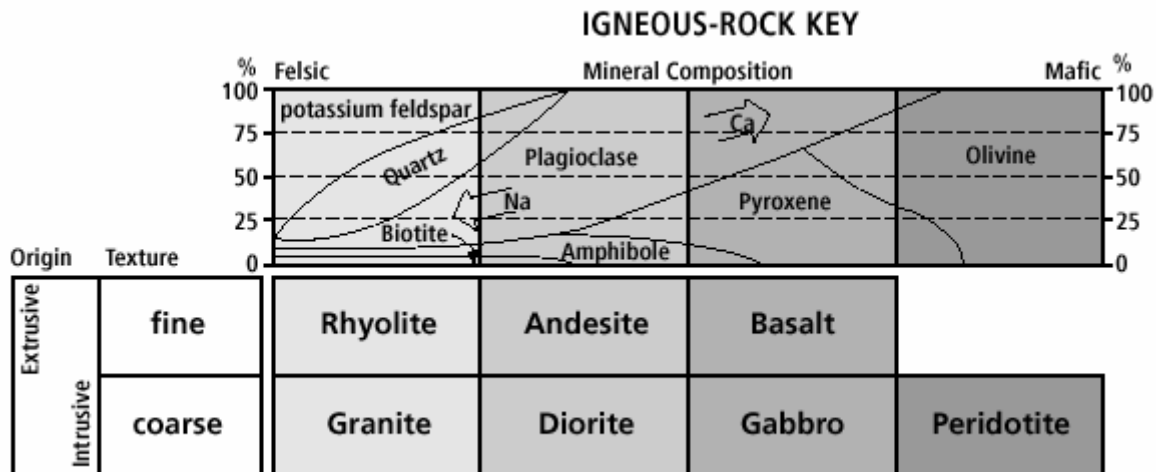
Igneous rocks form when molten rock called magma cools. Igneous rocks are classified by mineral composition and texture. Their mineral composition indicates the nature of the magma. Texture indicates how the magma cooled. Based on a cross of these two characteristics we can determine the name of the igneous rock.

Objectives:

- Estimate mineral percentages in igneous rock samples.
- Identify types of igneous rocks.

Materials:

- igneous rocks samples 1-15
- igneous-rock key



Procedure:

1. Observe a rock sample provided by your teacher and determine whether the texture is fine-grained or coarse-grained. Record this data in the table.
2. Estimate and record the percentage of dark minerals. This percentage will allow you to classify the rock as felsic (few dark minerals, light-colored or gray), intermediate (about 50 percent dark minerals, dark gray), or mafic (more than 70 percent dark minerals, very dark or black).
3. Estimate and record the percentage of feldspar. Classify the feldspar as potassium (pink, white, or gray) or plagioclase (white or gray with striations).
4. Estimate and record the percentage of quartz. If the sample has no quartz, it belongs in the gabbro-basalt group. If it has less than 10 percent quartz, it belongs in the diorite-andesite group. If it has 10–40 percent quartz, it belongs in the granite-rhyolite group.

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- Using the igneous-rock key provided by your teacher, identify the unknown igneous-rock sample. Write the correct name of the sample in the table.
- Repeat steps 1–5 for the remaining rock samples.

Rock Sample	Texture	Estimated % of Dark Minerals	Felsic, Mafic or Intermediate	Name of Rock
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

Analysis/Conclusions

Directions: Answer each of the following on a separate sheet of paper.

- How did you determine whether the rocks were felsic, mafic, or intermediate?
- Explain how the texture of a rock indicates how the rock formed.
- Extrusive rocks may be glassy, fine-grained, or porphyritic. Compare and contrast the conditions under which these rocks form.