Objective: You will investigate the properties by which igneous rocks can be identified.

Materials: Earth Science Reference Tables, rock samples

Procedure: Complete the report sheet using your samples, the scheme for Igneous Rock Identification and any reference material provided.

PART A:

Questions:
1. How is the size of the mineral grains affected by the rate at which the molten rock material cools?

2. How can you determine if an igneous rock has had an intrusive or extrusive origin?

3. In general, how does the characteristic mineral composition of a light colored igneous rock differ from that of a dark colored igneous rock?

4. In general, how does the density of a light colored igneous rock differ from that of a dark colored igneous rock?

5. What is the main difference between lava and magma?

6. What minerals occur in granite?

7. What minerals would you expect to occur in rhyolite?

8. On what basis are igneous rocks classified?

PART B:

Match the following terms with the definitions below
A) Felsic  E) Igneous
B) Lava    F) Extrusive
C) Texture G) Magma
D) Mafic   H) Intrusive

9. Molten rock below the surface of the Earth

10. Description of grains within an igneous rock

11. Igneous rock that cooled quickly at the surface of the Earth.
12. Igneous rock with low density, high in silicon and aluminum and is light in color.

13. Rock formed from the cooling of molten rock material.

14. Molten rock at the surface of the Earth.

15. Igneous rock the cooled slowly deep inside the Earth.

16. Igneous rock with high density, high in iron and magnesium and is dark in color.

PART C:

Use the ESRT and the Rock samples to complete the chart below.

<table>
<thead>
<tr>
<th>Texture</th>
<th>How Formed (Intrusive/Extrusive)</th>
<th>Density</th>
<th>Minerals Present</th>
<th>Composition</th>
<th>Rock Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coarse</td>
<td>Intrusive</td>
<td>Low</td>
<td>Pyroxene, Plagioclase Feldspar</td>
<td>Felsic</td>
<td>Granite</td>
</tr>
<tr>
<td>Fine</td>
<td>Extrusive</td>
<td>Low</td>
<td></td>
<td>Felsic</td>
<td>Basalt</td>
</tr>
<tr>
<td>Glassy</td>
<td>Extrusive</td>
<td>Variable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vesicular</td>
<td>Extrusive</td>
<td>Medium</td>
<td>Potassium Feldspar, Quartz</td>
<td>Pumice</td>
<td></td>
</tr>
<tr>
<td>Vesicular</td>
<td>High</td>
<td></td>
<td></td>
<td>Mafic</td>
<td></td>
</tr>
<tr>
<td>Coarse</td>
<td>Intrusive</td>
<td>Medium</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very Coarse</td>
<td>Low</td>
<td></td>
<td>Plagioclase Feldspar, Amphibole, Biotite</td>
<td>Felsic</td>
<td>Andesite</td>
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</table>