CLASS NOTES

• Igneous Rocks - _____________________________________________________________

• Methods to classify igneous rocks:
  1. Environment of Formation - ____________________________________________________

    • Magma - ________________________________________________________________

    • Plutonic - rock that formed ________________ within the Earth

    • Intrusive - ________________ Earth’s crust

    • Lava - ________________________________________________________________

    • Volcanic - rock that formed ________________ Earth’s surface

    • Extrusive - ________________ Earth’s crust

Magma / Intrusive

Lava / Extrusive

Plutonic Rock

Volcanic Rock

Magma / Intrusive
Packet: Igneous Rocks

- Methods used to classify igneous rocks [continued]:

2. **Crystal Size** - ____________________________________________________________
   - Crystal size is an important factor to determine the environment of formation
   - The _____________________ the cooling time the _____________________ the crystal size [coarse or very coarse]
   - The _____________________ the cooling time the _____________________ the crystal size [glassy or fine]
   - Remember:

   ![Fine Grained](image1.png) ![Coarse Grained](image2.png)

3. **Texture** - ________________________________________________________________
   - **Vesicular** - ________________________________________________________________
   - **Porphyritic** - texture that contains large crystals in a fine grained matrix
Methods used to classify igneous rocks (continued):

4. **Color** - the shade of the rock based on its composition
   - Either: _______________ or _______________

5. **Density** - the ratio of mass to volume of the rock based on its composition
   - Either: _______________ or _______________

6. **Composition** - a mixture of materials that make up an igneous rock
   - Either: felsic or mafic
     - **Felsic** - ____________________________________________
       ___________________________________________________
     - **Mafic** - ___________________________________________
       ___________________________________________________

7. **Mineral Composition** - ___________________________________________
   ____________________________________________________

![Diagram of mineral composition](image)
PART I QUESTIONS: MULTIPLE CHOICE

1. Which is a fine-grained igneous rock made up primarily of pyroxene and plagioclase feldspar?
   a. granite
   b. gabbro
   c. basalt
   d. rhyolite

2. The best evidence for determining the cooling rate of an igneous rock is provided by
   a. the disintegration of radioactive substances
   b. the crystal size of its minerals
   c. index fossils
   d. faults in the rock

3. Basalt contains the greatest quantity of which mineral?
   a. mica
   b. quartz
   c. pyroxene
   d. potassium feldspar

4. Which statement best describes the percentage of plagioclase feldspars in a sample of gabbro?
   a. Gabbro always contains less plagioclase than pyroxene
   b. Gabbro contains no plagioclase feldspars
   c. Plagioclase feldspars always make up 25% of a gabbro sample
   d. The percentage of plagioclase feldspar in gabbro can vary

5. Which property would be most useful for identifying igneous rocks?
   a. types of fossils present
   b. kind of cement
   c. number of minerals present
   d. mineral composition

6. A fine-grained igneous rock contains 11% plagioclase, 72% pyroxene, 15% olivine, and 2% amphibole. This rock would most likely be classified as
   a. rhyolite
   b. gabbro
   c. basalt
   d. granite

7. Which is the best description of the properties of basalt?
   a. fine-grained and felsic
   b. coarse-grained and mafic
   c. coarse-grained and felsic
   d. fine-grained and mafic
8. Rhyolite and granite are alike in that they both are
   a. felsic
   b. fine-grained
   c. dark-colored
   d. mafic

9. Most igneous rocks form by which processes?
   a. erosion and deposition
   b. heat and pressure
   c. melting and solidification
   d. compaction and cementation

10. Rhyolite is an example of a
    a. polymineralic sedimentary rock
    b. polymineralic igneous rock
    c. monomineralic sedimentary rock
    d. monomineralic igneous rock

11. Which texture best describes an igneous rock that formed deep underground?
    a. glassy
    b. fine grained
    c. vesicular
    d. coarse grained

12. A nonvesicular rock is made entirely of green 2-millimeter-diameter crystals is most likely
    a. granite
    b. dunite
    c. obsidian
    d. pumice

13. Which igneous rock has a vesicular texture and a mafic composition?
    a. pumice
    b. basalt
    c. granite
    d. scoria

14. Which is the best description of the properties of granite?
    a. fine-grained and felsic
    b. coarse-grained and mafic
    c. coarse-grained and felsic
    d. fine-grained and mafic

15. Which is the best description of the properties of pumice?
    a. vesicular and felsic
    b. vesicular and mafic
    c. non-vesicular and felsic
    d. non-vesicular and mafic