

# Igneous Rock Lab

Earth Science

Mr. Traeger

Name: \_\_\_\_\_ Period: \_\_\_\_\_ Date: \_\_\_\_\_

## Purpose

The purpose of this lab is to investigate the composition and texture of igneous rocks. We will also attempt to identify each rock.

## Materials

- Igneous Rock Samples
- Ruler
- Hand Lenses
- Textbook pages 124 and 703

## Procedure

1. Get together with a lab partner and select an igneous rock at the front of the classroom.
2. Go through the Igneous Rock Identification Table and find the required information to help you to identify the rock. Use this information and the textbook/rock guides to help you with your identification
3. Repeat this procedure for all 12 rocks.

## Data

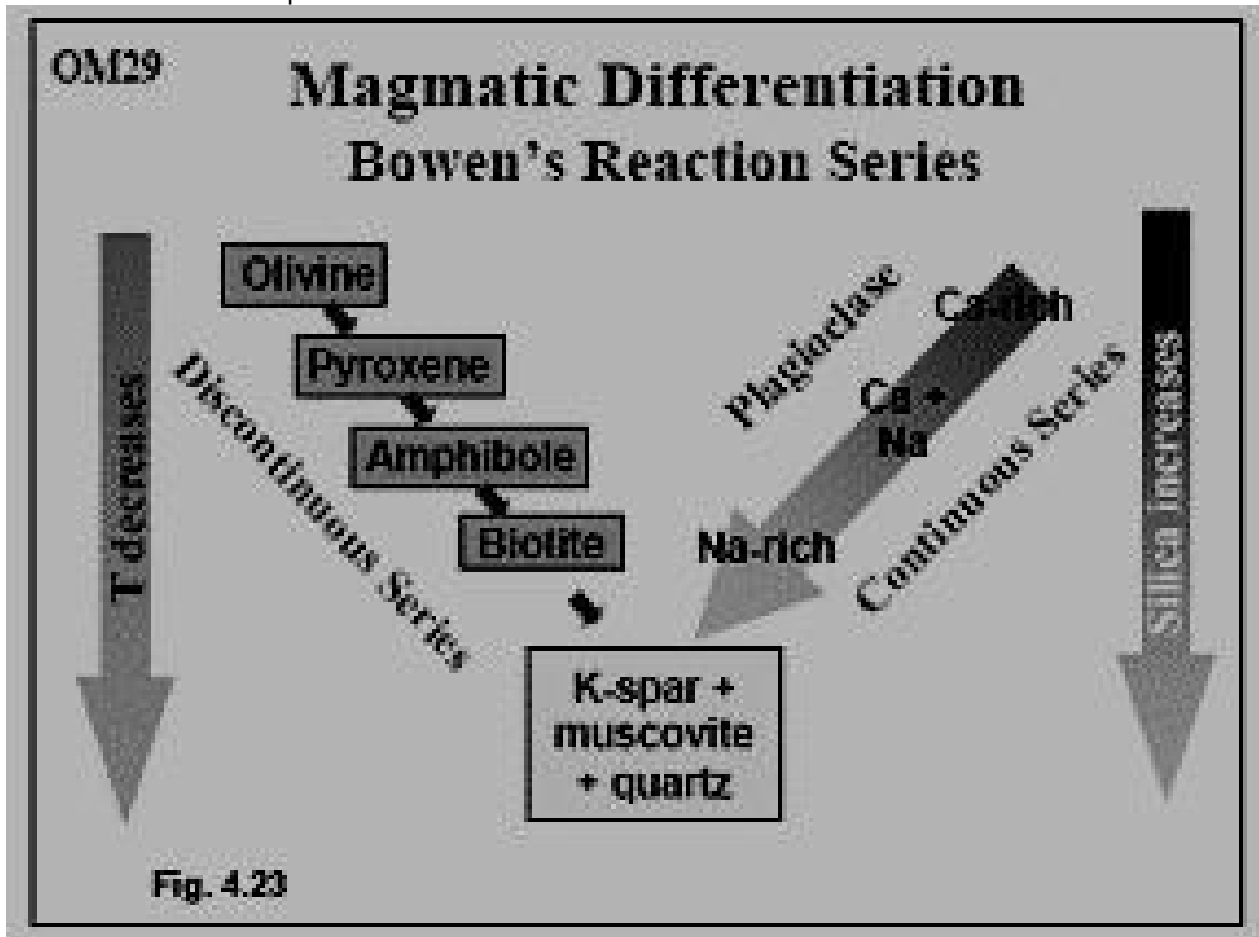
See Igneous Rock Identification Table.

## Questions

1. What is the easiest way to tell the difference between intrusive and extrusive igneous rocks?
2. Why did some of the rocks have holes (pores) in them?
3. Is it possible for a rock with invisible (very small) crystals to have the same mineral and chemical composition as a rock with visible crystals? *Why?* (Hint: see page 4 of your rock cycle and igneous rock notes.)
4. How does the depth at which an igneous rock forms affect its crystal size?
5. We will fill in the following chart with correct names of rocks. Please write them in when we do.

Texture	Chemical Composition				
	Felsic	Felsic-intermediate	Intermediate	Mafic	Ultramafic
Coarse-grained					
Fine-grained					
Glassy					
Porous					

6. Look at Bowen's Reaction Series below.



7. According to Bowen's Reaction Series, what type of mineral will crystallize (freeze) first? Felsic or Mafic?
8. According to Bowen's Reaction Series, what type of mineral will crystallize (freeze) last? Felsic or Mafic?
9. What does magmatic differentiation mean?
10. What is the difference between the discontinuous series and the continuous series?

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Drawing of Rock and Rock Number	Size of Crystals in millimeters  Vesicles (gas bubble openings)?	Texture: <i>Aphanitic</i> (fine grained) or <i>Phaneritic</i> (coarse grained)? <i>Porphyritic</i> (large crystals within smaller crystals)?	<i>Felsic</i> (light-colored), <i>Intermediate</i> , or <i>Mafic</i> (dark-colored)?	Composition Minerals? What minerals are in this rock based upon the ID chart?	<i>Intrusive</i> (formed deep within Earth) or <i>Extrusive</i> (formed at the surface)?	Possible ID? Use chart in blue binder and igneous rock guides
<u>1</u>						
<u>2</u>						
<u>3</u>						
4						
<u>5</u>						
<u>6</u>						

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Drawing of Rock and Rock Number	Size of Crystals in millimeters  Vesicles (gas bubble openings)?	Texture: <i>Aphanitic</i> (fine grained) or <i>Phaneritic</i> (coarse grained)? <i>Porphyritic</i> (large crystals within smaller crystals)?	<i>Felsic</i> (light-colored), <i>Intermediate</i> , or <i>Mafic</i> (dark-colored)?	Composition Minerals? What minerals are in this rock based upon the ID chart?	<i>Intrusive</i> (formed deep within Earth) or <i>Extrusive</i> (formed at the surface)?	Possible ID? Use chart in blue binder and igneous rock guides
<u>7</u>						
8						
<u>9</u>						
<u>10</u>						
11						
12						