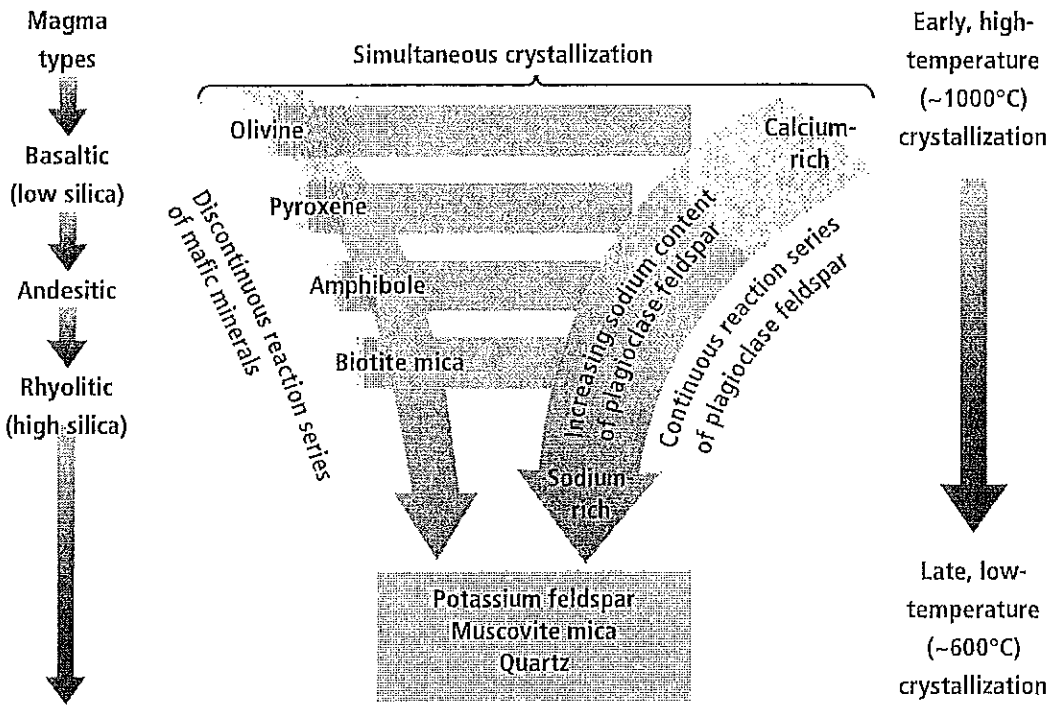
Use with Chapter 5
Section 5.1

Bowen's Reaction Series



Name Class Date

WORKSHEET 11 TEACHING TRANSPARENCY

Use with Chapter 5
Section 5.1

Bowen's Reaction Series

1. In Bowen's reaction series, how do the two main branches of crystallization differ?

A) The Left side is a series which has abrupt changes while the Right side is continuous change

B) The Left side is a continuous change while the Right side is a series which has abrupt changes

C) Neither side is different in how they form just different minerals

2. As magma cools, which are the first feldspars to crystallize?

A) Calcium Rich Feldspar B) Sodium Rich Feldspar C) Quartz D) Potassium Feldspar

3. Describe the composition of a zoned crystal that developed during feldspar crystallization. ~~What caused it to form?~~

A) As Calcium on the inside gets larger increases; Sodium on the outside (gets smaller) decreases.

B) As Sodium on the inside (gets smaller) decreases; Calcium on the outside (gets larger) increases.

C) As Calcium on the inside (gets smaller) decreases: Sodium on the outside (gets larger) increases.

4. As magma cools, what is the first iron-rich mineral to crystallize?

A) Olivine B) Quartz C) Amphibole D) Calcium Rich feldspar

5. Which crystallizes at a higher temperature—amphibole or pyroxene?

A) Amphibole B) pyroxene

6. What happens to amphibole when temperatures drop?

A) it stops cooling & slowly turns into Biotite mica B) it stops forming & Biotite mica starts C) it stops forming & Feldspar starts forming

7. What elements remain in the melt at the end of the reaction series? ~~What forms when this melt finally crystallizes?~~

A) Quartz & Feldspar B) Olivine & Feldspar C) Silicon & Oxygen D) Silicon & Quartz

8. What forms when this melt finally crystallizes?

A) Quartz B) Olivine C) Feldspar D) Muscovite Mica