Chapter 8

Metamorphic Rocks

“Changed in Form”
Agents of Formation

- Heat
- Pressure
- Hot Fluids
Metamorphic Processes

- Mechanical Deformation
- Recrystallization
- Recombination
Types of Metamorphism

- Contact

A. Emplacement of igneous body and metamorphism

B. Crystallization of pluton
Types of Metamorphism

- Regional
Index Minerals

Increasing Metamorphism

Low Grade (200°)

Intermediate Grade

High Grade (800°)

Chlorite
Muscovite (mica)
Biotite (mica)
Garnet
Staurolite
Sillimanite
Quartz
Feldspar

No alteration
Slate
Phyllite
Schist
Gneiss
Melting

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Classification

- Foliated
Foliated

Low.................................................................High

Slate  Schist  Gneiss
Occurrence of Foliated Rocks
Classification

- NonFoliated

Photomicrograph (6.5x)

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NonFoliated

Marble

Quartzite
Importance

- Earth Forces
- Rare Minerals
- Industry Uses
Rock Cycle

- Weathering, transportation, and deposition
- Cementation and compaction (lithification)
- Uplift, weathering, transportation, and deposition
- Uplift, weathering, transportation, and deposition
- Heat and pressure (metamorphism)
- Heat and pressure
- Cooling and solidification (crystallization)
- Magma

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Exam 1

- 50 questions (primarily from notes)
- 2 pts each (5 choices)
- Know the vocabulary
- Bring blue bubble sheets
- [http://personal.tcu.edu/~morgan/geolec](http://personal.tcu.edu/~morgan/geolec)