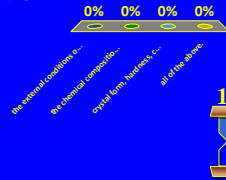


Physical properties of a mineral are predominantly related to

1. the external conditions of temperature, pressure, and amount of space available for growth.
2. the chemical composition and the internal arrangement of the atoms that make up the mineral.
3. crystal form, hardness, cleavage and fracture, and density.
4. all of the above.

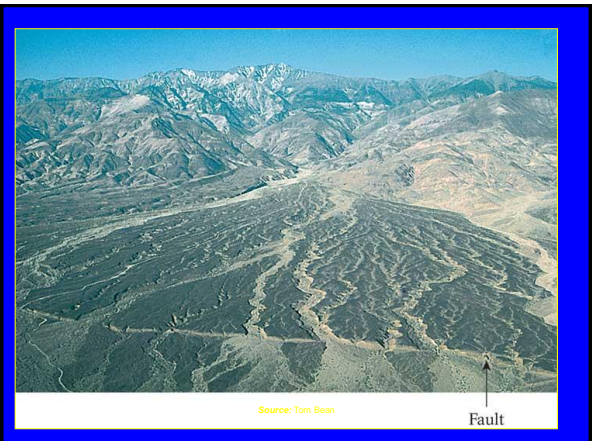
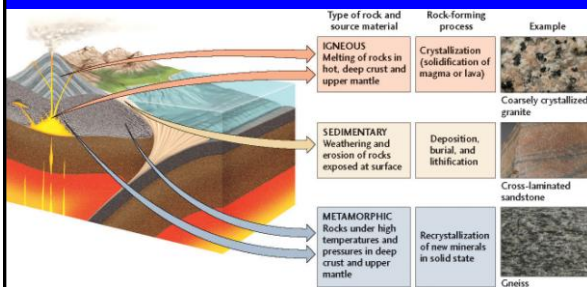


How to Describe Rocks...



Photo: E. Pugh

APPEARANCE OF A ROCK defined by 1) color; 2) mineralogy; 3) size of crystals



Source: Tom Bean

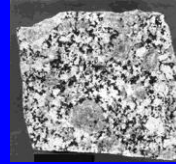
Fault

Sediment



Rock fragments, shells, etc....

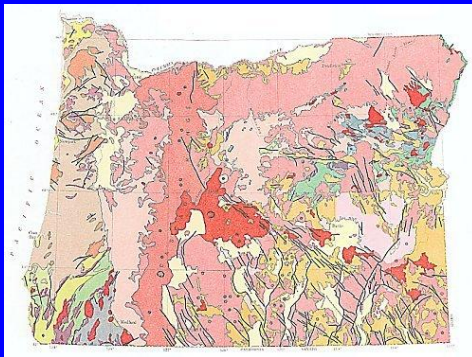
Bedrock



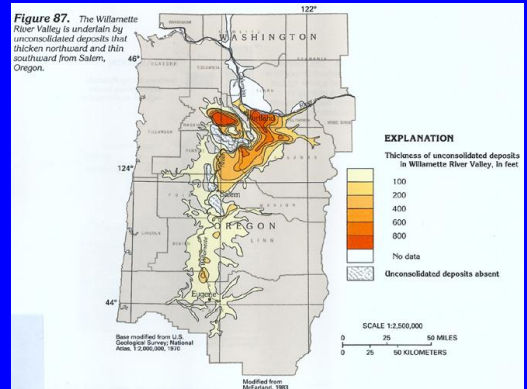
Hand Sample



Outcrop



Geologic Map of Oregon



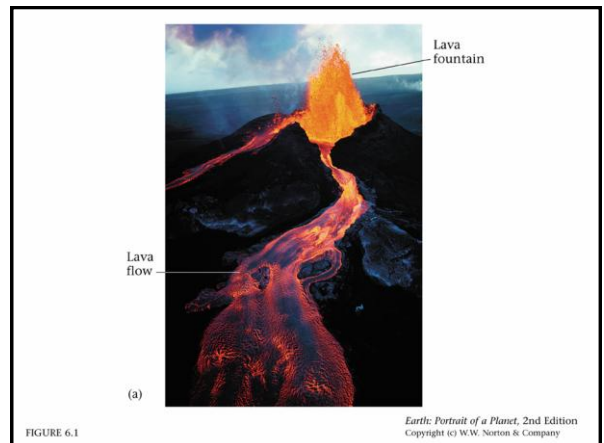
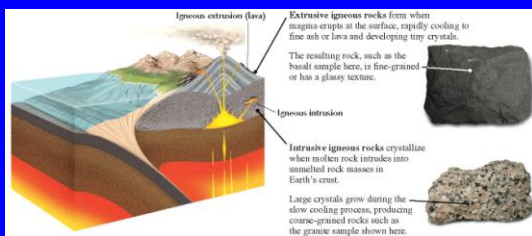
Three Rock Types

Igneous Rock

IGNEOUS ROCKS: formed by the solidification of magma

-Extrusive: cool above ground (tiny crystals)

-Intrusive: cool below ground (large crystals)



Advancing lava flow



Advancing lava flow

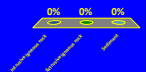


Volcano and Solidified Lava Flow

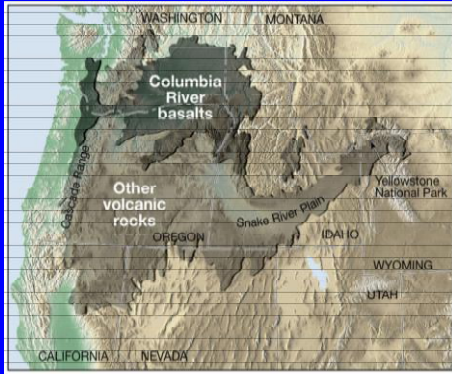


Solidified Lava Flow
This is an example
of an:

1. Intrusive igneous rock
2. Extrusive igneous rock
3. Sediment



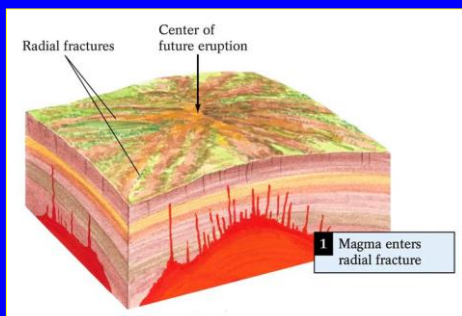
Volcanic Rocks in the PNW



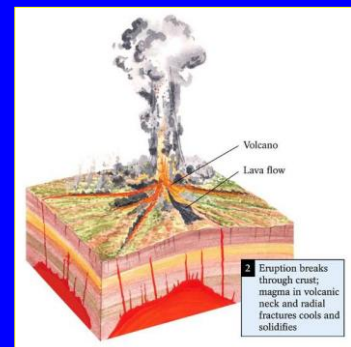
Shiprock Peak in New Mexico



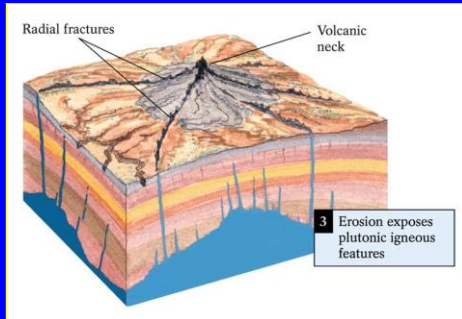
Shiprock Peak in New Mexico



Shiprock Peak in New Mexico



Shiprock Peak in New Mexico

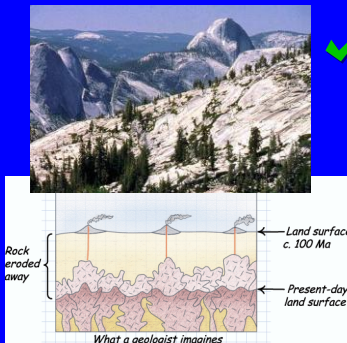


Ship Rock, NM



Frozen Magma Chambers in California are:

- ✓ 1. Intrusive igneous rocks
2. Extrusive igneous rocks
3. Sediment



Igneous Rocks

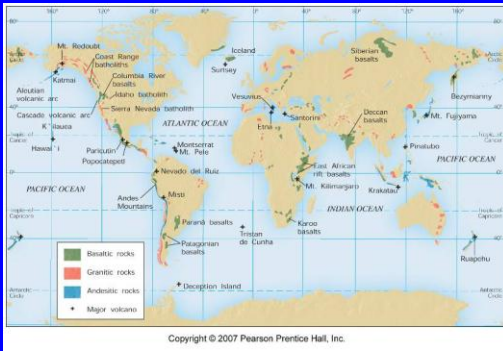


Granite

Basalt

Andesite

Global Distribution of Igneous Rocks



Sedimentary Rock

Where do
you find
sediment?

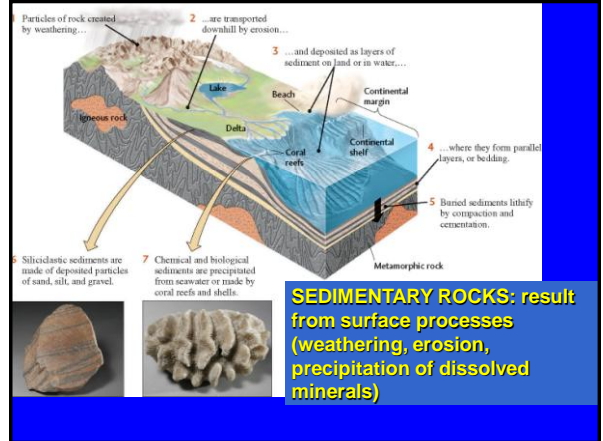


Modern
Mississippi
Delta

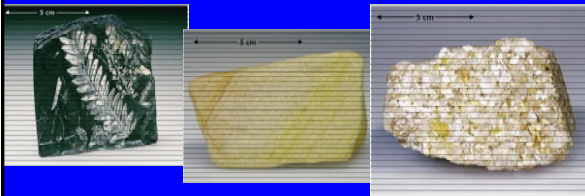


Source: World Perspectives/Gamma

Strata



Sedimentary Rocks



Shale

Sandstone

Limestone

Metamorphic Rock

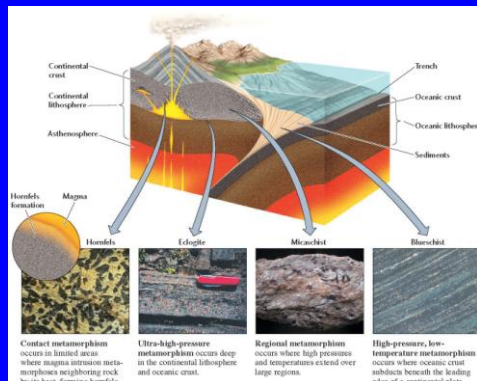
Strata can be tilted....



Strata can be folded...



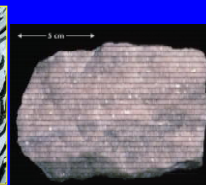
METAMORPHIC ROCKS: Modification of preexisting rocks subjected to increased temperature and pressure



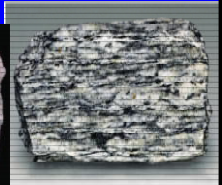
Metamorphic Rocks



Slate

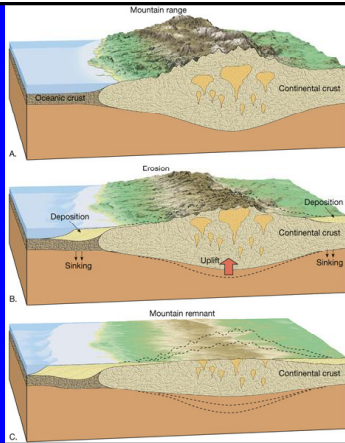


Marble



Gneiss

Mountain Building Creates Metamorphic Rocks



Metamorphic Rocks

