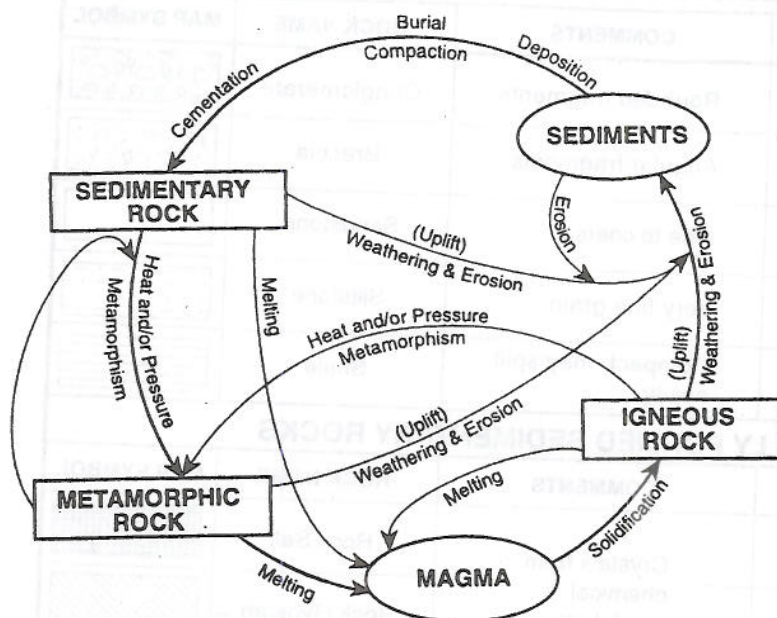
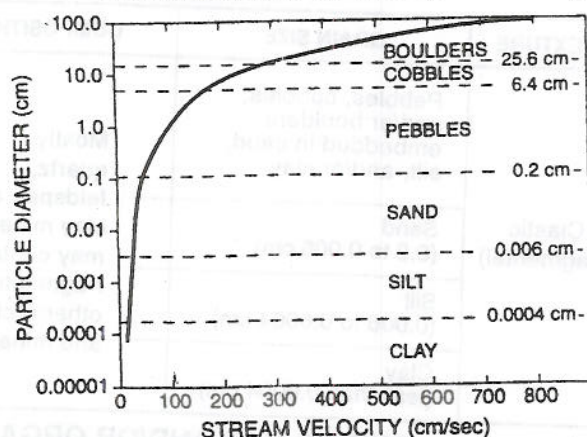


## Rock Cycle in Earth's Crust



## Relationship of Transported Particle Size to Water Velocity

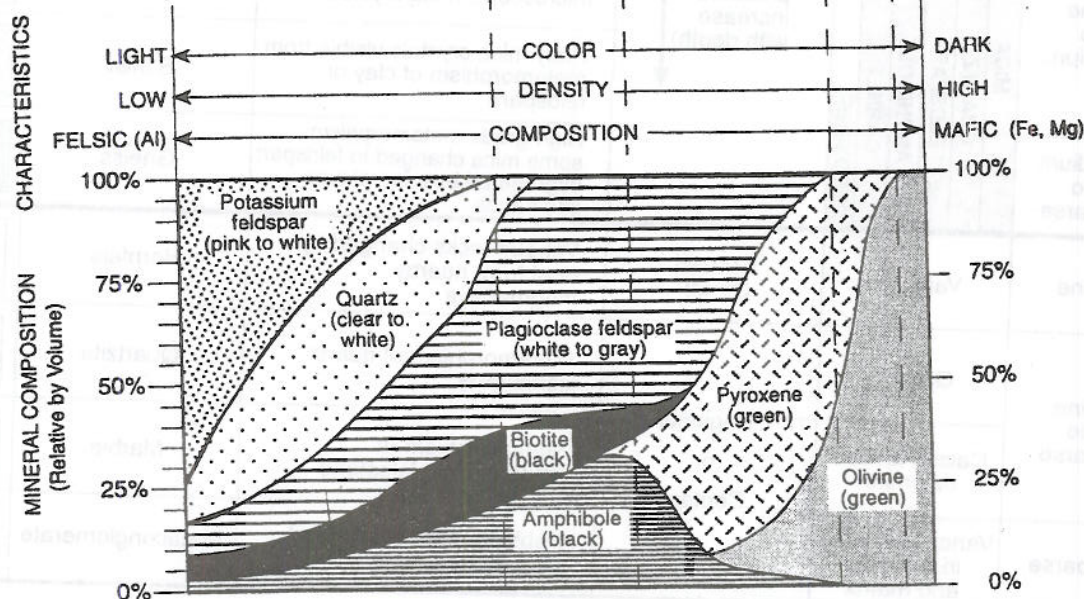


\*This generalized graph shows the water velocity needed to maintain, but not start, movement. Variations occur due to differences in particle density and shape.

## Scheme for Igneous Rock Identification

IGNEOUS ROCKS

Scheme for Igneous Rock Identification									
ENVIRONMENT OF FORMATION				GRAIN SIZE		TEXTURE			
EXTRUSIVE (Volcanic)	INTRUSIVE (Plutonic)	Obsidian (usually appears black)		Basaltic Glass		Non-crystalline	Glassy	Non-vesicular	
		Pumice		Vesicular Basaltic Glass				Vesicular (gas pockets)	
		Vesicular Rhyolite	Vesicular Andesite	Scoria / Vesicular Basalt		less than 1 mm	Fine		
		Rhyolite	Andesite	Basalt					
	Granite	Diorite	Gabbro	Peridotite	Dunite	1 mm to 10 mm	Coarse	Non-vesicular	
	Pegmatite				10 mm or larger	Very Coarse			





## Scheme for Sedimentary Rock Identification

### INORGANIC LAND-DERIVED SEDIMENTARY ROCKS

TEXTURE	GRAIN SIZE	COMPOSITION	COMMENTS	ROCK NAME	MAP SYMBOL
Clastic (fragmental)	Pebbles, cobbles, and/or boulders embedded in sand, silt, and/or clay	Mostly quartz, feldspar, and clay minerals; may contain fragments of other rocks and minerals	Rounded fragments	Conglomerate	
			Angular fragments	Breccia	
	Sand (0.2 to 0.006 cm)		Fine to coarse	Sandstone	
	Silt (0.006 to 0.0004 cm)		Very fine grain	Siltstone	
	Clay (less than 0.0004 cm)		Compact; may split easily	Shale	

### CHEMICALLY AND/OR ORGANICALLY FORMED SEDIMENTARY ROCKS

TEXTURE	GRAIN SIZE	COMPOSITION	COMMENTS	ROCK NAME	MAP SYMBOL
Crystalline	Varied	Halite	Crystals from chemical precipitates and evaporites	Rock Salt	
	Varied	Gypsum		Rock Gypsum	
	Varied	Dolomite		Dolostone	
Bioclastic	Microscopic to coarse	Calcite	Cemented shell fragments or precipitates of biologic origin	Limestone	
	Varied	Carbon	From plant remains	Coal	

## Scheme for Metamorphic Rock Identification

TEXTURE	GRAIN SIZE	COMPOSITION	TYPE OF METAMORPHISM	COMMENTS	ROCK NAME	MAP SYMBOL
FOLIATED	Fine	MICA QUARTZ FELDSPAR AMPHIBOLE GARNET PYROXENE	Regional  (Heat and pressure increase with depth) ↓	Low-grade metamorphism of shale	Slate	
				Foliation surfaces shiny from microscopic mica crystals	Phyllite	
	Fine to medium			Platy mica crystals visible from metamorphism of clay or feldspars	Schist	
	Medium to coarse			High-grade metamorphism; some mica changed to feldspar; segregated by mineral type into bands	Gneiss	
NONFOLIATED	Fine	Variable	Contact (Heat)	Various rocks changed by heat from nearby magma/lava	Hornfels	
	Fine to coarse	Quartz	Regional or Contact	Metamorphism of quartz sandstone	Quartzite	
		Calcite and/or dolomite		Metamorphism of limestone or dolostone	Marble	
	Coarse	Various minerals in particles and matrix		Pebbles may be distorted or stretched	Metaconglomerate	