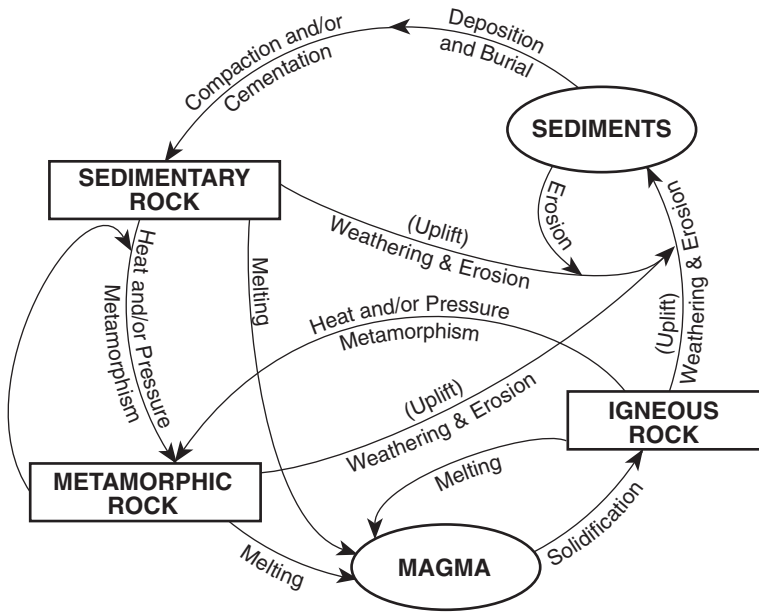
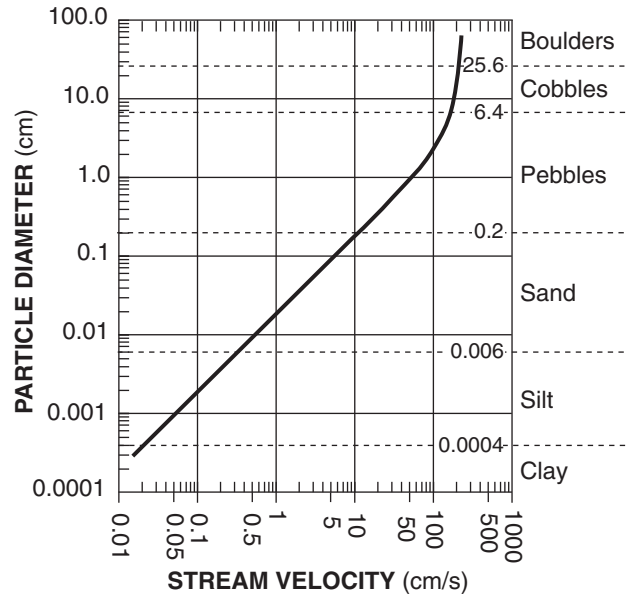


## Rock Cycle in Earth's Crust



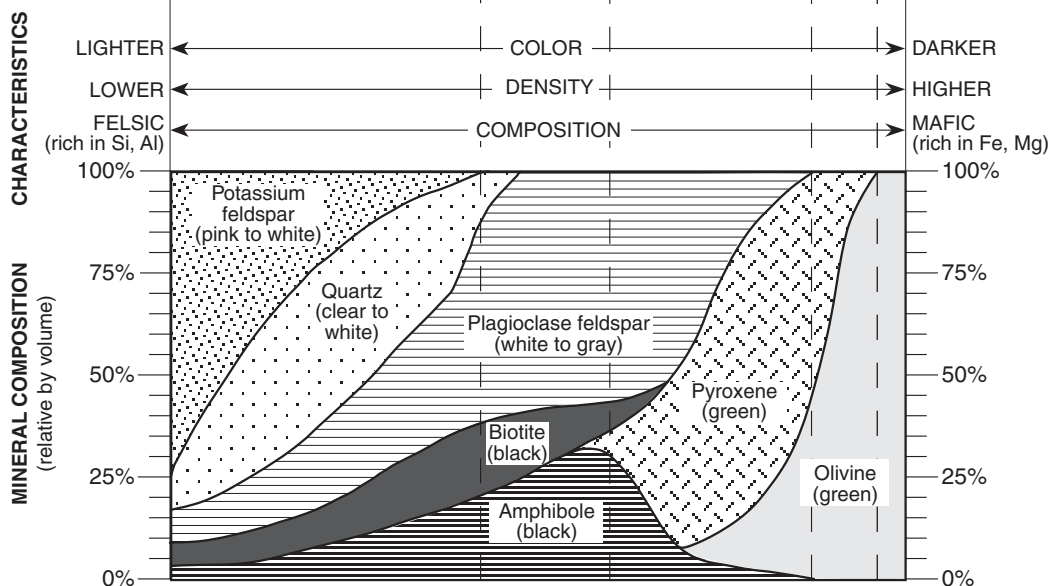
## Relationship of Transported Particle Size to Water Velocity





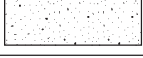
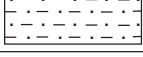

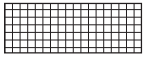

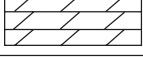

This generalized graph shows the water velocity needed to maintain, but not start, movement. Variations occur due to differences in particle density and shape.

## Scheme for Igneous Rock Identification


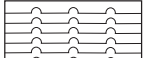
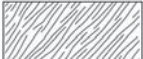
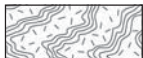




ENVIRONMENT OF FORMATION		CRYSTAL SIZE				TEXTURE	
		Obsidian (usually appears black)		Basaltic glass		Glassy	Non-vesicular
EXTRUSIVE (Volcanic)	Pumice		Scoria		non-crystalline	Glassy	Non-vesicular
	Vesicular rhyolite	Vesicular andesite	Vesicular basalt				
	Rhyolite	Andesite	Basalt		1 mm to 10 mm	Coarse	Non-vesicular
	Granite	Diorite	Diabase	Peridotite			
INTRUSIVE (Plutonic)	Pegmatite		Gabbro				



## 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	<b>Conglomerate</b>	
			Angular fragments	<b>Breccia</b>	
	Sand (0.006 to 0.2 cm)		Fine to coarse	<b>Sandstone</b>	
	Silt (0.0004 to 0.006 cm)		Very fine grain	<b>Siltstone</b>	
Clay (less than 0.0004 cm)	Compact; may split easily	<b>Shale</b>			
CHEMICALLY AND/OR ORGANICALLY FORMED SEDIMENTARY ROCKS					
TEXTURE	GRAIN SIZE	COMPOSITION	COMMENTS	ROCK NAME	MAP SYMBOL
Crystalline	Fine to coarse crystals	Halite	Crystals from chemical precipitates and evaporites	<b>Rock salt</b>	
		Gypsum		<b>Rock gypsum</b>	
		Dolomite		<b>Dolostone</b>	
Crystalline or bioclastic	Microscopic to very coarse	Calcite	Precipitates of biologic origin or cemented shell fragments	<b>Limestone</b>	
Bioclastic		Carbon		Compacted plant remains	<b>Bituminous coal</b>

## Scheme for Metamorphic Rock Identification

TEXTURE	GRAIN SIZE	COMPOSITION	TYPE OF METAMORPHISM	COMMENTS	ROCK NAME	MAP SYMBOL
FOLIATED  MINERAL ALIGNMENT   BAND- ING	Fine	MICA QUARTZ FELDSPAR AMPHIBOLE GARNET PYROXENE	Regional (Heat and pressure increases)  ↓	Low-grade metamorphism of shale	<b>Slate</b>	
	Fine to medium			Foliation surfaces shiny from microscopic mica crystals	<b>Phyllite</b>	
	Medium to coarse			Platy mica crystals visible from metamorphism of clay or feldspars	<b>Schist</b>	
				High-grade metamorphism; mineral types segregated into bands	<b>Gneiss</b>	
NONFOLIATED	Fine	Carbon	Regional	Metamorphism of bituminous coal	<b>Anthracite coal</b>	
	Fine	Various minerals	Contact (heat)	Various rocks changed by heat from nearby magma/lava	<b>Hornfels</b>	
	Fine to coarse	Quartz	Regional or contact	Metamorphism of quartz sandstone	<b>Quartzite</b>	
		Calcite and/or dolomite		Metamorphism of limestone or dolostone	<b>Marble</b>	
Coarse	Various minerals		Pebbles may be distorted or stretched	<b>Metaconglomerate</b>	