A Field Classification of Sedimentary Rocks

A	Observed Characteristics	Name
Organic Solids	Brown to black. Partially decayed plant material, can resemble a soil.	**peat**
	Brown to black. Soft and crumbles easily when dry. Leaves black smudge on fingers.	**lignite (brown coal)**
	Black, sometimes dark brown. Generally dull luster but can have bright, shiny layers. Harder than lignite, softer than anthracite coal. Leaves black smudge on fingers.	**bituminous coal** (Fig. 6.11B)
	Black, sometimes with a brown or blue reflection, semi-metallic luster. Harder than a fingernail but softer than copper or steel.	**anthracite coal** (Fig. 6.11C)

B		Major Mineral Composition	Observable Texture	Distinguishing Characteristics and Comments		Rock Name
Fizzes in dilute hydrochloric acid (HCl)	Carbonate Sedimentary Rocks	calcite or aragonite	clay-silt sized carbonate grains	readily fizzes with acid, variable color (gray, tan, brown), mostly very fine grains	limestone (ls.)	**microcrystalline ls.** or **micrite**
			very fine; bioclastic	typically white or light gray, soft, generally leaves a white powder on fingers		**chalk**
			intergrown crystals	precipitated mineral grains; typically associated with springs, caves or geysers		**travertine** (Fig. 6.7)
			sand-size	carbonate sandstone; carbonate grains of any type cemented together		**calcarenite**
			sand-size	sand-sized white spheroids (ooids-Fig. 6.6) usually cemented with calcite		**oolitic ls.**
			sand-gravel; bioclastic	shells and shell fragments cemented in a porous mass; looks like shell granola		**coquina** (Fig. 6.5)
			sand-gravel; bioclastic	abundant fossils (bivalves, gastropods, coral, etc.) in a carbonate matrix		**fossiliferous ls.** (Figs. 6.4 & 6.22)
		dolomite	typically very small intergrown crystals	***fizzes in dilute HCl strongly only if powdered;*** usually light colored (tan, gray); small sparkly grains		**dolostone**
Does not react with hydrochloric acid (HCl)	Siliciclastic Sedimentary Rocks	quartz	microscopic grains	hard, scratches glass or steel; wide range of colors; might be precipitated or bioclastic quartz		**chert** (Fig. 6.23)
		clay minerals, quartz ± others	silt & clay-size gr. mostly clay-sized	color varies; might swell when wet; >67% clay-size particles; lacks fissility or obvious fine layering		**claystone**
			silt & clay-size gr. mostly silt-sized	color varies, tans-grays; >50% silt-size particles; lacks fissility, breaks into blocks or layers		**siltstone** (Fig. 6.20)
			silt & clay-size	very fine-grained rock that lacks fissility and percentage of clay or silt-size grains is unknown		**mudstone**
				claystone that breaks along roughly planar surfaces spaced close together (has fissility)		**shale** (Fig. 6.21)
		mostly quartz	mostly sand-size grains	quartz sand grains, typically with silica or calcite cement ± clay; range of colors	sandstone (ss.)	**quartz ss.** (Fig. 6.19)
		quartz, clays		mostly sand-size grains but with a large component of clay-size grains		**muddy ss.** (argillaceous ss.)
		quartz, feldspar, clays, ± rock fragments		at least 25% feldspar; color tends toward red-brown-pink; usually poorly cemented		**arkose ss.** (Fig. 6.13)
		quartz, clays, feldspar, ± rock fragments		quartz & feldspar grains in a clay matrix, often with dark minerals and rock frags; dark gray-green		**graywacke**
		fossils in matrix of quartz ± other silicates		sandstone containing obvious fossils; range of colors possible		**fossiliferous ss.**
		quartz, rock fragments ± other silicates		sandstone of any compositional variety containing rock fragments		**lithic ss.**
		various silicates and rock fragments	mostly gravel-size grains	rounded to subround gravel-size grains surrounded by finer grains		**conglomerate** (Fig. 6.17)
				angular to subangular gravel-sized grains surrounded by finer grains		**breccia** (Fig. 6.18)
	Other	halite	fine to very coarse mass of crystals	can be clear, white, pink, red; tastes salty; evaporite deposit		**rock salt** (Fig. 6.10A)
		gypsum, anhydrite		soft enough to be scratched by a fingernail; evaporite deposit		**rock gyspsum** (Fig. 6.24)