CLASSIFICATION OF SELECTED SEDIMENTARY MATERIALS

Start Here

Is it an aggregate of mineral grains?

- yes → Is it a carbonate rock whose mineral grains react in acid?
  - yes → Is it mostly calcite or dolomite?
    - mostly calcite (it fizzes vigorously in acid) → Find the best match
    - mostly dolomite (it fizzes weakly in acid) →
  - no → Is it composed mostly of silicate mineral grains (e.g., quartz, feldspar, clay, etc.) or silicate rock fragments?
    - yes → Is it a mass of tiny intergrown crystals?
      - yes → Find the best match
      - no → Is it mostly siliciclastic grains? → Find the best match
    - no → Is it a mass of intergrown crystals that are not carbonate or silicate minerals?
- no → Is it a variety of coal?
  - yes → Find the best match

	Name
	limestone[1]
Porous mass of carbonate-cemented shells or shell fragments	coquina
Dense mass of intergrown mineral grains that precipitated from water	travertine
Porous mass of intergrown precipitated mineral grains	tufa
	dolostone[1]

[1]Varieties include fossiliferous, peloidal, oolitic, peletal, micritic, and coralline among others.

Might have precipitated near a geyser or a hot spring	geyserite or siliceous sinter
Might have precipitated in a hole or in an open crack in a rock	onyx or agate
Might have formed a nodule or sedimentary layer, or replaced wood in a "petrified tree"	chert

Most grains are gravel size (>2 mm)	conglomerate
Most grains are gravel size (>2 mm) and angular in shape	breccia
Most grains are sand size (<2 mm) and feel gritty between your fingers	sandstone[2]
Most grains are silt size — does not feel very gritty between your fingers, but does feel gritty in your mouth	siltstone
Most grains are clay size — does not feel gritty even in your mouth	claystone
Mixture of clay- and silt-sized grains	mudstone
Layered mudstone that tends to crack along roughly parallel surfaces (has fissility)	shale

[2]Varieties include fossiliferous, muddy or argillaceous, quartz, arkosic, and pebbly among others.

volcaniclastic sediment (e.g., ash, lapilli, blocks)

Mostly or entirely volcaniclastic sediment (tephra) that is >2 mm across	pyroclastic breccia
Mostly or entirely tephra <2 mm across	tuff

Tastes salty; usually light color (white, gray)	rock salt
Easily scratched; usually light color	rock gypsum

Partially decayed plant material; dark brown to black color, dull to earthy luster; leaves black or brown smudge on fingers; low density	peat
Black to dark brown color, dull to earthy luster; crumbles easily; leaves black smudge on fingers; lumpy and might include some plant fragments; low density	lignite
Black color, dull to shiny luster; stronger than lignite, brittle and easily fractured; low-medium density; leaves black smudge on fingers	bituminous coal
Black color sometimes with a blue glint or irridescence, shiny semi-metallic luster; stronger than bituminous coal, brittle; medium density	anthracite coal