IGNEOUS ROCKS

	Most crystals too small to see *(because formed through eruption on Earth's surface and thus cooled quickly)*	**Crystals ALL big enough to see and interlocking** *(because formed by cooling slowly underground in a magma chamber)*
Mafic (dark colored and dense) *note: due to high Fe content, often appears with some iron oxidation on the surface	BASALT *(formed through eruption of magmas, usually in oceanic volcanic settings)*	GABBRO *(formed through slow cooling of magma chambers, usually under seafloor spreading centers)*
Felsic (light colored and less dense)		GRANITE *(formed through slow cooling of magma chambers, usually under continental volcanoes)*

METAMORPHIC ROCKS

SERPENTINITE

Smooth, shiny, dark mottled green, no visible crystals (looks like it slipped up a crack in the Earth – like a watermelon seed)

(Formed through hot waters heating and changing the chemistry of mantle rock under a seafloor spreading center. Later, due to its low density, it migrates up cracks, especially in subduction zones, and accretes to the continent.)

SEDIMENTARY ROCKS – SPECIAL

Black, soft, rough-textured, concentric spheres around central nodule *(precipitated from seawater in areas where the waters are supersaturated in Manganese)*	MANGANESE (Mn) Nodule
Black, rounded, streamlined, glassy, pitted, smooth *(remnants of asteroid collisions with Earth – bits of Earth's surface propelled into space upon impact, but then immediately returning and, now molten, solidifying into an aerodynamic shape as hurtling back to Earth)*	TEKTITES
Crystalline Chemical (visible interlocking or large crystals, can be in layers) **Made of $CaCO_3$ or Salt or Gypsum** *(precipitated from seawater or highly saline lakes on land in areas where the waters is evaporating)*	EVAPORITE

SEDIMENTARY ROCKS

Chemical (smooth texture – almost glassy)	Made of SiO_2 **CHERT**	Made of $CaCO_3$ **LIMESTONE**
Clastic Shells (made of visible pieces of shells – when mud-sized, white)	Made of SiO_2 **DIATOMITE** *only mud-sized and highly permeable; water soaks in easily*	Made of $CaCO_3$ mud-sized **CHALK** gravel-sized **COQUINA**

Clastic Rock Fragments (made of visible pieces of rock or mineral fragments – if mud-sized, can be white, but usually red, green, or grey. Can rub off in hand or be compacted to point where you can't see individual grains)	Gravel, Sand, and Mud-sized Grains	Angular grains **BRECCIA** Rounded grains **CONGLOMERATE**
	Sand-sized Grains	**SANDSTONE**
	Mud-sized Grains	**MUDSTONE** *Kaolinite is the white variety (gets sticky when wet)*

COMPARING THE THREE WHITE ROCKS

(ALL white mud-sized grains)

CHALK	Made of $CaCO_3$ (hence reacts with acid)
DIATOMITE	Made of SiO_2 (highly permeable to water – soaks right in)
KAOLINITE	Sticky when wet (denser, usually, more compact)