
ROCKS

A Rock is an Aggregate of Minerals

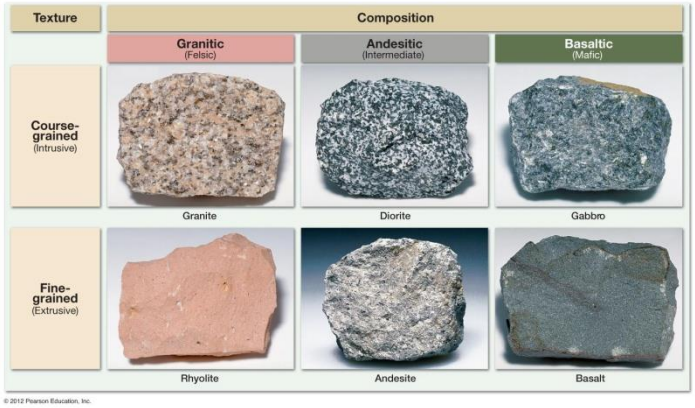
What does the word aggregate mean?

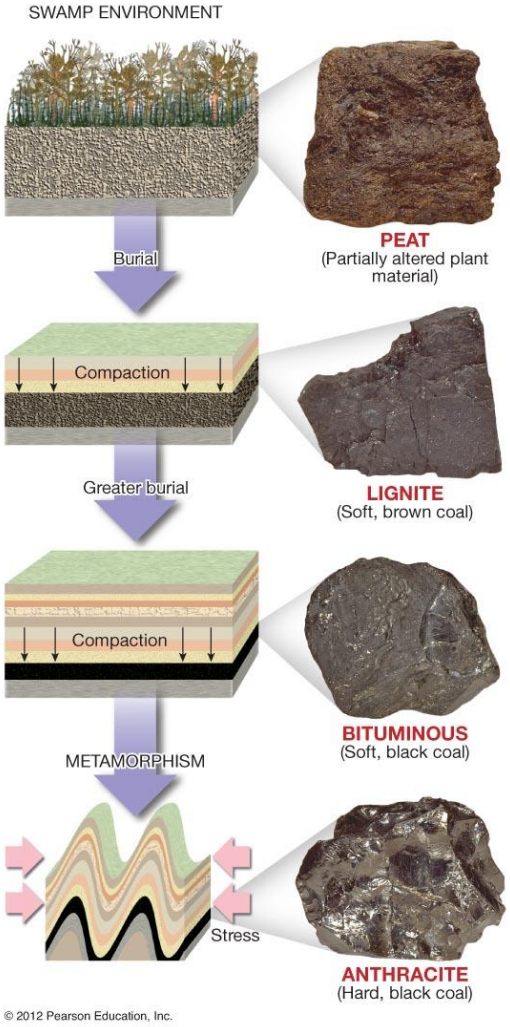
Rocks are grouped into three types:

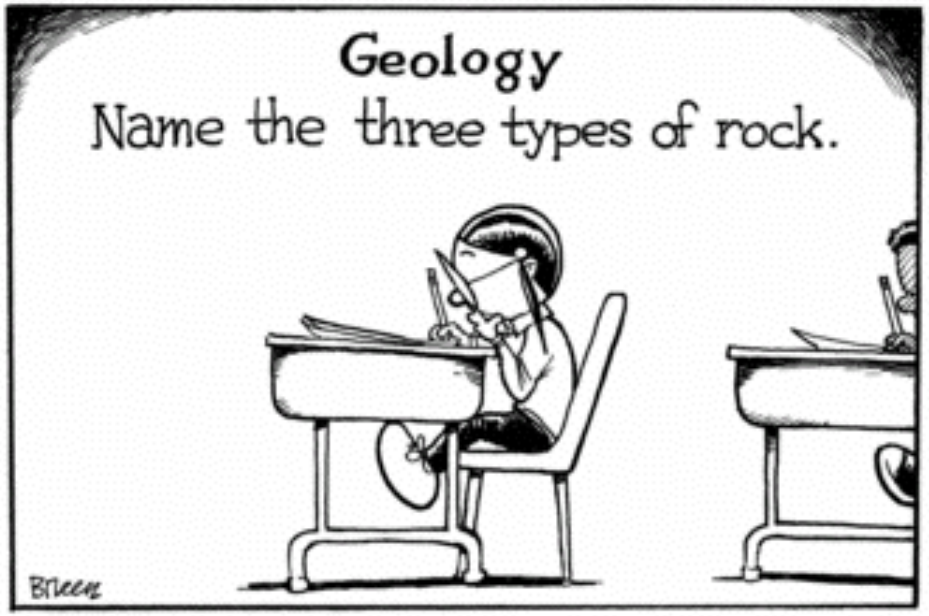
Igneous

Sedimentary

Metamorphic







4-22

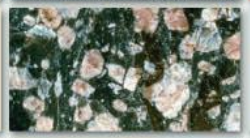
1. Classic
2. Punk
3. Hard

Igneous Rocks

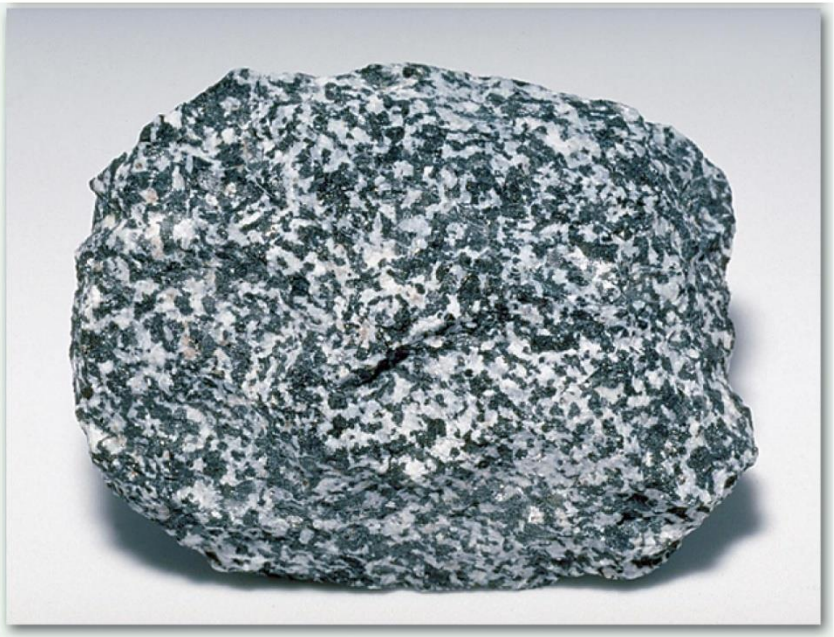
Intrusive (Plutonic) or Extrusive (Volcanic)

Granite

Basalt

Chemical Composition			Granitic (Felsic)	Andesitic (Intermediate)	Basaltic (Mafic)	Ultramafic
Dominant Minerals			Quartz Potassium feldspar Sodium-rich plagioclase feldspar	Amphibole Sodium- and calcium-rich plagioclase feldspar	Pyroxene Calcium-rich plagioclase feldspar	Olivine Pyroxene
TEXTURE	Coarse-grained		**Granite**	**Diorite**	**Gabbro**	**Peridotite**
	Fine-grained		**Rhyolite**	**Andesite**	**Basalt**	**Komatiite** (rare)
	Porphyritic		"Porphyritic" precedes any of the above names whenever there are appreciable phenocrysts			
	Glassy		**Obsidian** (compact glass) **Pumice** (frothy glass)			Uncommon
Rock Color (based on % of dark minerals)			0% to 25%	25% to 45%	45% to 85%	85% to 100%

Granite



Diorite

Gabbro

Rhyolite

Andesite

Basalt

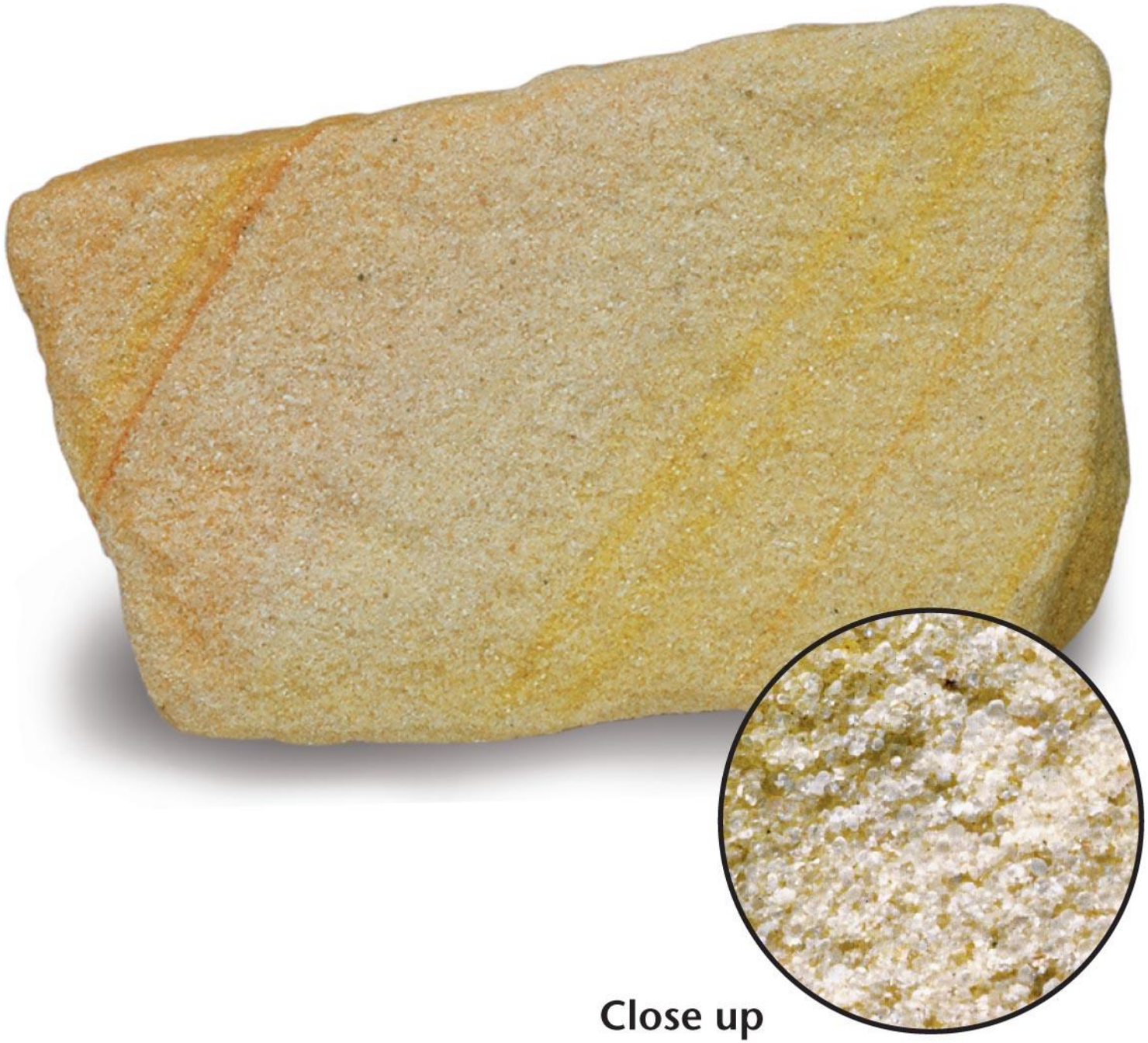
What is the main factor that controls crystal size?

Supply the missing term:

Intrusive or _____

Extrusive or _____

Sedimentary Rocks



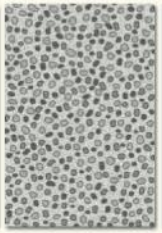
5 cm

A.

Why are fossils found most often in sedimentary rock?

What is a quick test for carbonate rock (limestone)?

Detrital Sedimentary Rocks

Clastic Texture (particle size)		Sediment Name	Rock Name
Coarse (over 2 mm)		Gravel (Rounded particles)	**Conglomerate**
		Gravel (Angular particles)	**Breccia**
Medium (1/16 to 2 mm)		Sand (If abundant feldspar is present the rock is called **Arkose**)	**Sandstone**
Fine (1/16 to 1/256 mm)		Mud	**Siltstone**
Very fine (less than 1/256 mm)		Mud	**Shale or Mudstone**

Chemical and Organic Sedimentary Rocks

Composition	Texture	Rock Name	
Calcite, $CaCO_3$	Nonclastic: Fine to coarse crystalline	**Crystalline Limestone**	
		Travertine	
	Clastic: Visible shells and shell fragments loosely cemented	**Coquina**	**Biochemical Limestone**
	Clastic: Various size shells and shell fragments cemented with calcite cement	**Fossiliferous Limestone**	
	Clastic: Microscopic shells and clay	**Chalk**	
Quartz, SiO_2	Nonclastic: Very fine crystalline	**Chert (light colored) Flint (dark colored)**	
Gypsum $CaSO_4 \cdot 2H_2O$	Nonclastic: Fine to coarse crystalline	**Rock Gypsum**	
Halite, NaCl	Nonclastic: Fine to coarse crystalline	**Rock Salt**	
Altered plant fragments	Nonclastic: Fine-grained organic matter	**Bituminous Coal**	

Detrital rocks are classified according to _____?

What conclusions may be inferred?

Metamorphic

Slate

Schist

Gneiss

Marble

Name to rock that metamorphosizes to become:

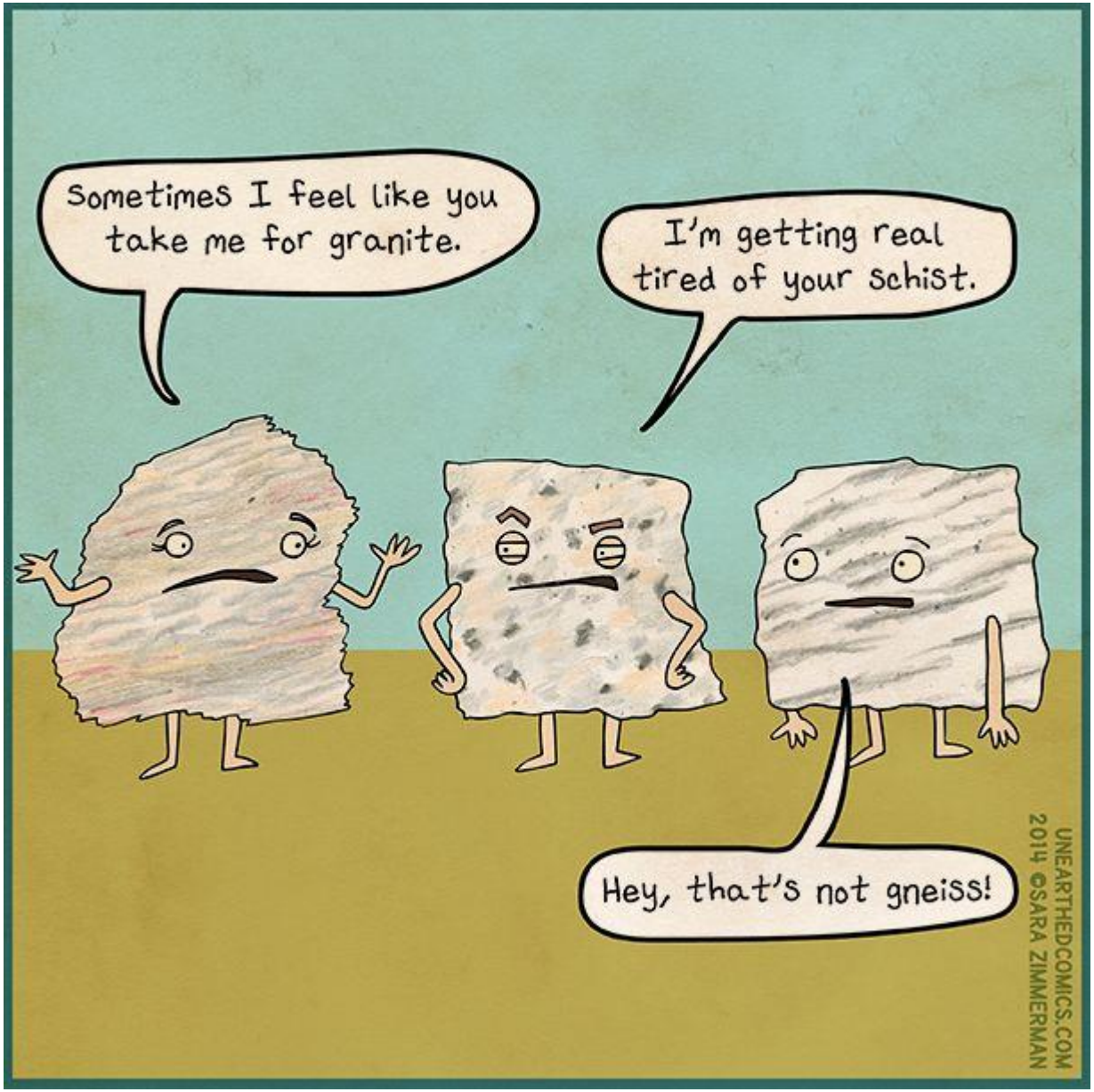
Gneiss

Slate

Marble

Quartzite

Examples



Sometimes I feel like you take me for granite.
I'm getting real tired of your schist.
Hey, that's not gneiss!
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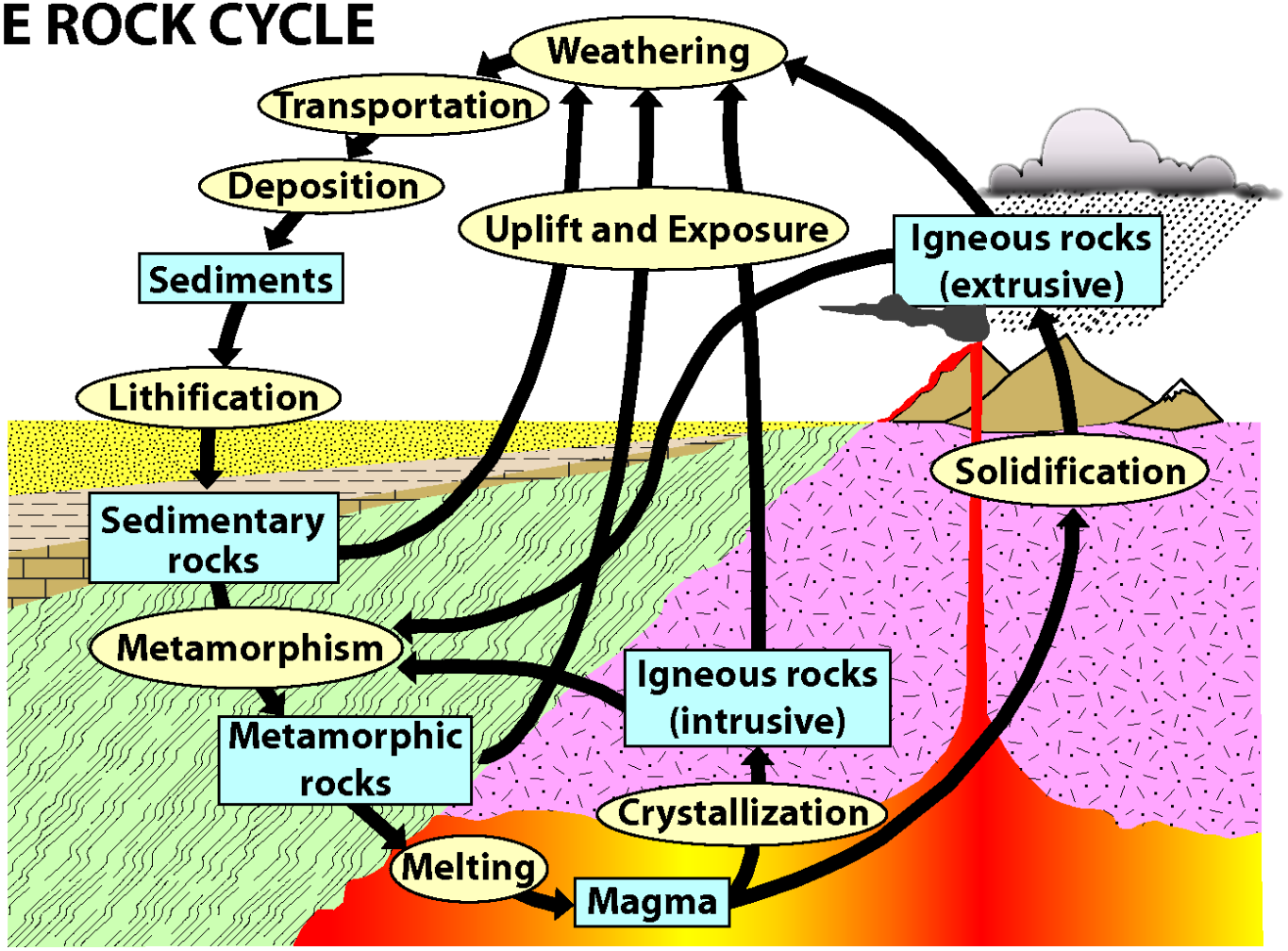
THE ROCK CYCLE

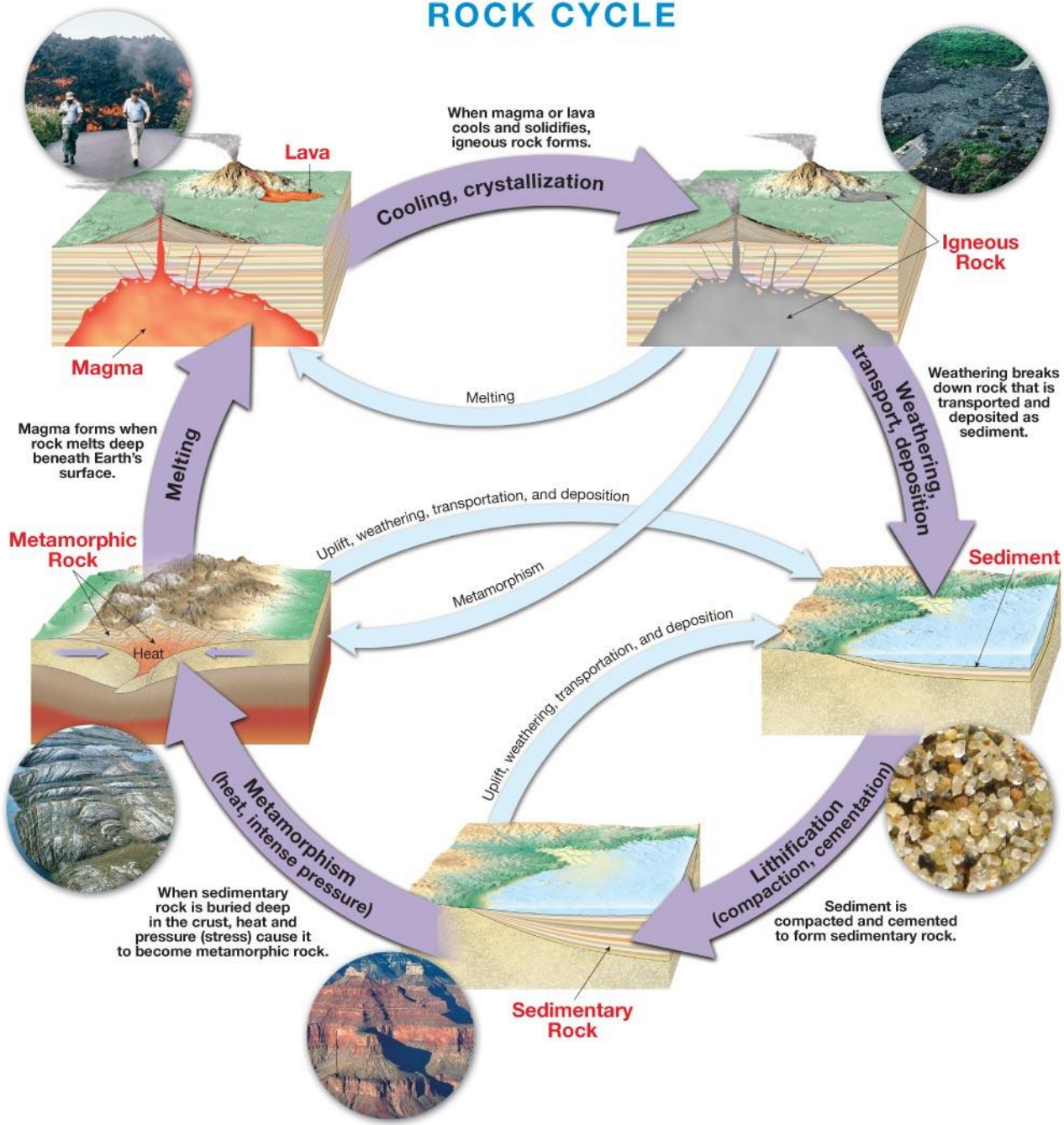


Igneous Rocks -
Rocks that form from the cooling of motlen rock (magma), Example: granite and basalt

Sedimentary Rocks -
Rocks that are fromed from pieces of other rocks, Example: sandstone, or that are deposited from the ocean by chemical processes, Example: limestone

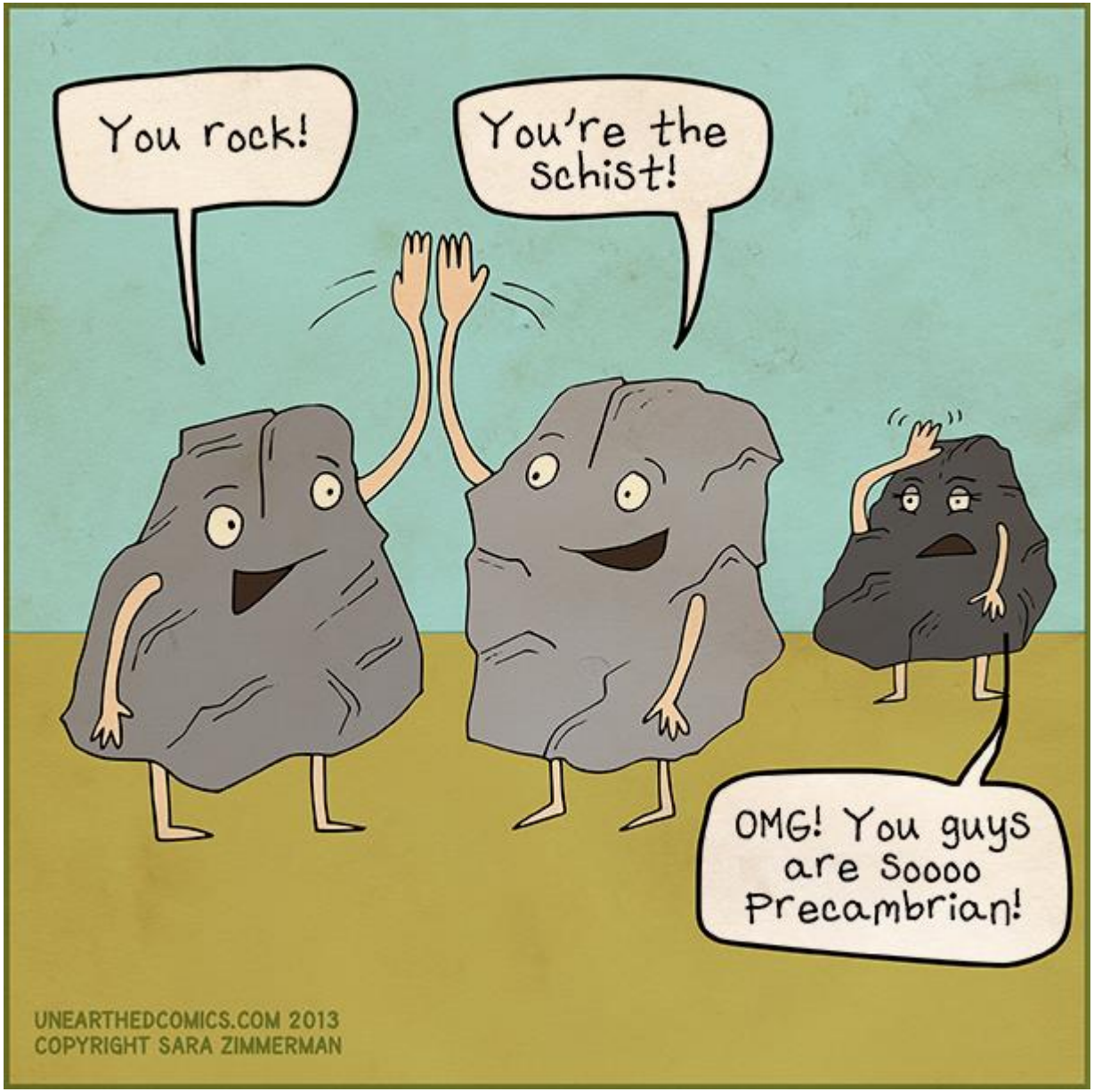
Metamorphic Rocks -
Rocks that are changed by heat and pressure without melting, Example: gneiss

ROCK CYCLE



What Do You Need to Know

- Three Types of Rocks: IMS
- Two Types of Igneous Rocks: P(I), V(E)
- Identify: granite, diorite, basalt, obsidian, pumice, conglomerate, breccia, sandstone, shale, limestone, gneiss, slate, schist, marble
- Rock Cycle


You rock!
You're the schist!
OMG! You guys are Soooo Precambrian!
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