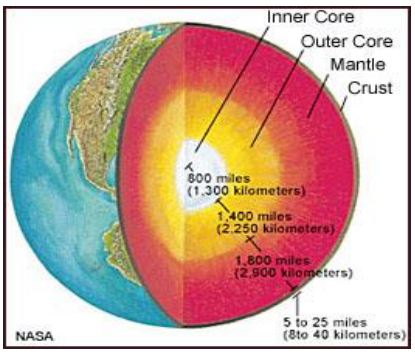
Earth and Space – The Lithosphere

Earth has many layers:

Lithosphere *Hydrosphere* *Atmosphere* *Biosphere*

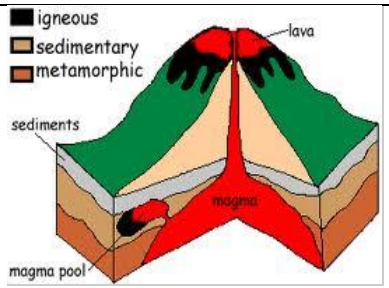
The Lithosphere

The solid part of the Earth (continental lithosphere and oceanic lithosphere)



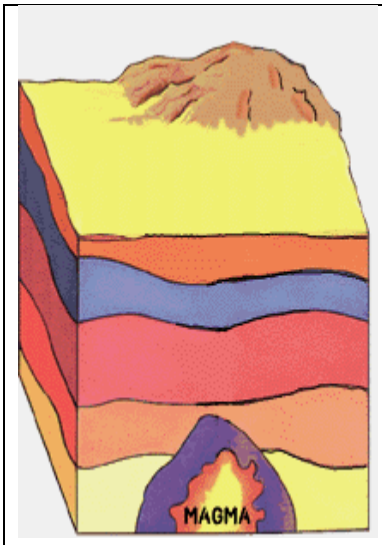
Mineral vs. Rocks vs. ORE

Minerals	Rock	Ore
-Inorganic substances *-Pure homogeneous substances* *-Naturally occurring* *-Have a distinct mineral composition* *-made of identically shaped crystal* *-characteristics used*	*-Heterogeneous solids composed of many minerals*	*-Rocks which contain minerals and elements* *-economically viable to extract* *-ore is extracted from lithosphere* *-Quebec has many mineral deposits (gold, copper, zinc, nickel, iron)*

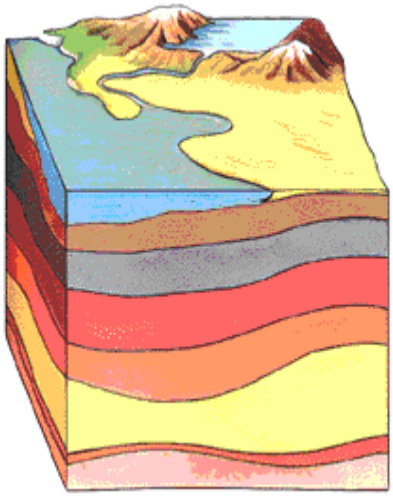
to define minerals are hardness, colour, transparency and streak		*-Mining is used to extract ores*
		

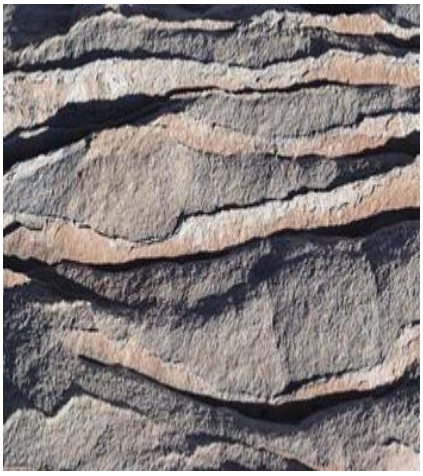
Rocks: **Types of rocks**

Igneous	Sedimentary	Metamorphic
-Called fire rocks *-Magma and lava form igneous rocks* *-Over 700 different types* *-Ex: granite and quartz*	*-Layers are pressed down more and more which forms different rock layers* *-Debris accumulates over time*	*- Rocks that have been transformed by heat or pressure* *-Were once igneous or sedimentary rock*

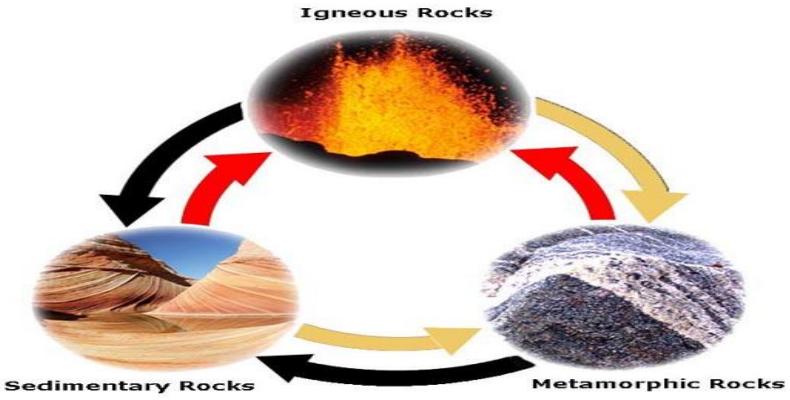

MAGMA

© geology.com





Rock Cycle


Igneous Rocks
Sedimentary Rocks
Metamorphic Rocks

Rocks to soil…

- *Through the wind and water erosion as well as freeze and thaw, erodes the rocks.*
- *Soil is produced*

As soil develops it thickens and forms distinct layers (a.k.a. horizons

- *200 years to form a layer of soil 1 cm thick!*

Soil horizons

- Horizon O: Organic Matter

-Mostly made up of organic matter

-Decomposing plants and animals

- Horizon A: Topsoil

-Supports plant life

-Mixture of minerals and organic matter

- Horizon B: Subsoil

-Made of small mineral particles

-Tree with deep roots, take in nutrients

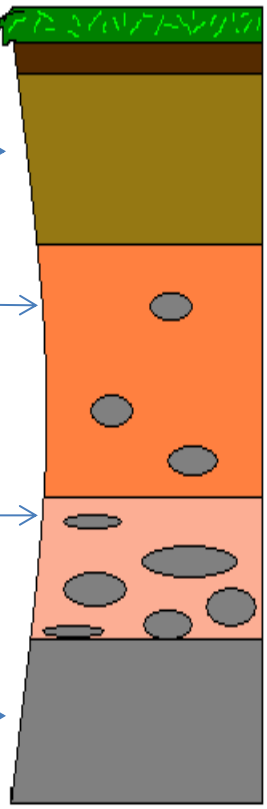
- Horizon C: Fragmented Parent Rock

-Also called substratum

-Formed by chunks of rock from layer below

- Horizon R: Unaltered parent rock

-Starting point of soil formation



Issues with soil…

What makes soil fertile?

1- Sufficient amount of minerals

2- Sufficient amount of moisture

3- Appropriate pH

- pH that is not optimal will limit the absorption of nutrients
- A soil's buffering capacity is its ability to resist pH changes. The finer the texture of the soil the better it will resist pH change.