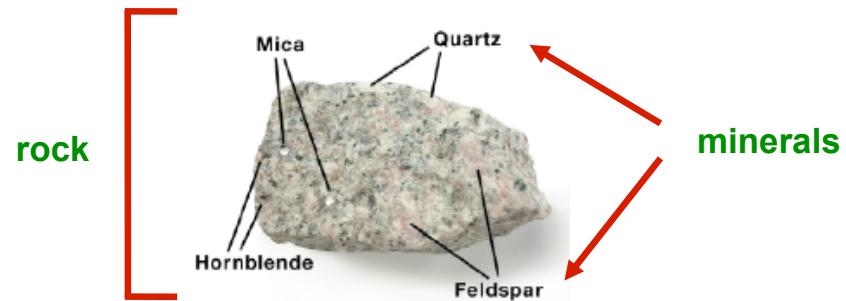




18.3 The composition of rocks

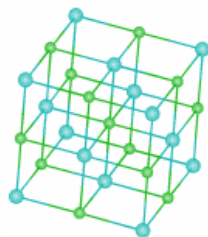
- A rock is a naturally-formed solid made of one or more minerals.





18.3 Rocks are made of minerals

- A mineral is a solid, inorganic object with a defined chemical composition.
- Minerals have atoms arranged into orderly structures called crystals.



This cubic mineral is often placed on food. Can you guess what it is?



18.3 Rocks are made of minerals

- **Diamonds and graphite are both minerals that are made of carbon, but their crystalline structures are different.**



18.3 Rocks are made of minerals

- There are more than 4,000 minerals on Earth.
- The two most abundant elements in Earth's crust, are oxygen and silicon.

Approximate percentage by weight of elements in Earth's crust	
oxygen	46.6%
silicon	27.7%
other minerals	25.7%



18.3 Common minerals and cleavage planes

- Mica is a rock with its minerals stacked like the pages in a book.
- A cleavage plane is a surface along which a mineral cleanly splits.



18.3 Common minerals and cleavage planes

- **Feldspar is the most abundant mineral in Earth's crust.**
- **Like feldspar, hornblende has two cleavage planes.**



18.3 Common minerals and cleavage planes

- **The mineral halite has three directions of cleavage and breaks into cubes.**



18.3 Common minerals and cleavage planes

- Quartz is the second most abundant mineral in Earth's crust.
- Unlike feldspar, quartz lacks cleavage planes.
- When quartz breaks, it does not split along planes.



18.3 Mohs hardness scale

- Mohs hardness scale was developed in 1812 by Friedrich Mohs (an Austrian mineral expert) as a method to identify minerals.
- This scale uses 10 minerals to represent variations in

Mineral	Hardness
talc	1
gypsum	2
calcite	3
fluorite	4
apatite	5
orthoclase (feldspar)	6
quartz	7
topaz	8
corundum	9
diamond	10

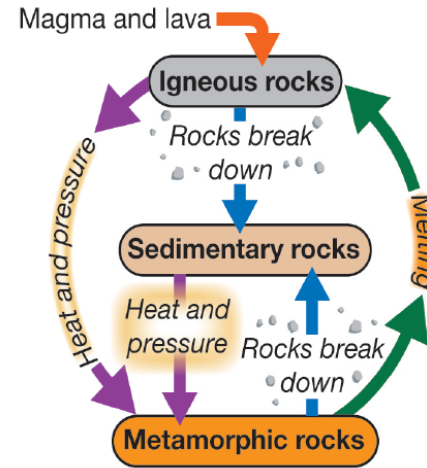


18.3 Groups of rocks

- There are three groups of rocks that are formed by the processes in the Earth's crust.
- An igneous rock forms from the cooling and crystallizing of magma or lava.
- A sedimentary rock is made of sediments.
- A metamorphic rock is a rock that is formed from another rock because of heat and pressure.

18.3 Rocks keep moving

- The rock cycle allows material to keep changing form and moving from place to place on Earth.





18.3 Rocks keep moving

- The processes that keep rock material moving through the rock cycle include weathering, erosion, deposition, compaction and cementation, metamorphism, and melting and crystallizing.
- An important geologic process— **plate tectonics**— plays an important role in the rock cycle.

Mass Extinction:

Devastation and Opportunity



- At the end of the Cretaceous Period, almost all of Earth's large vertebrates (including the dinosaurs), and most of the oceans' plankton became extinct. Research is currently underway to find out what caused this mass extinction.