

MOSCOW STATE UNIVERSITY OF MECHANICAL ENGINEERING  
(MAMI) UNIVERSITY OF MECHANICAL ENGINEERING



УНИВЕРСИТЕТ МАШИНОСТРОЕНИЯ

# Minerals

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# \* Minerals

A mineral is a naturally occurring chemical compound. Most often, they are crystalline and abiogenic in origin. A mineral is different from a rock, which can be an aggregate of minerals or non-minerals and does not have one specific chemical composition, as a mineral does.



- \*The study of minerals is called mineralogy. There are over 5,300 known mineral species. The silicate minerals compose over 90% of the Earth's crust.



Minerals are classified by key chemical constituents; the two dominant systems are the Dana classification and the Strunz classification.

The general definition of a mineral encompasses the following criteria:

- \* Naturally occurring
- \* Stable at room temperature
- \* Represented by a chemical formula
- \* Usually abiogenic (not resulting from the activity of living organisms)
- \* Ordered atomic arrangement



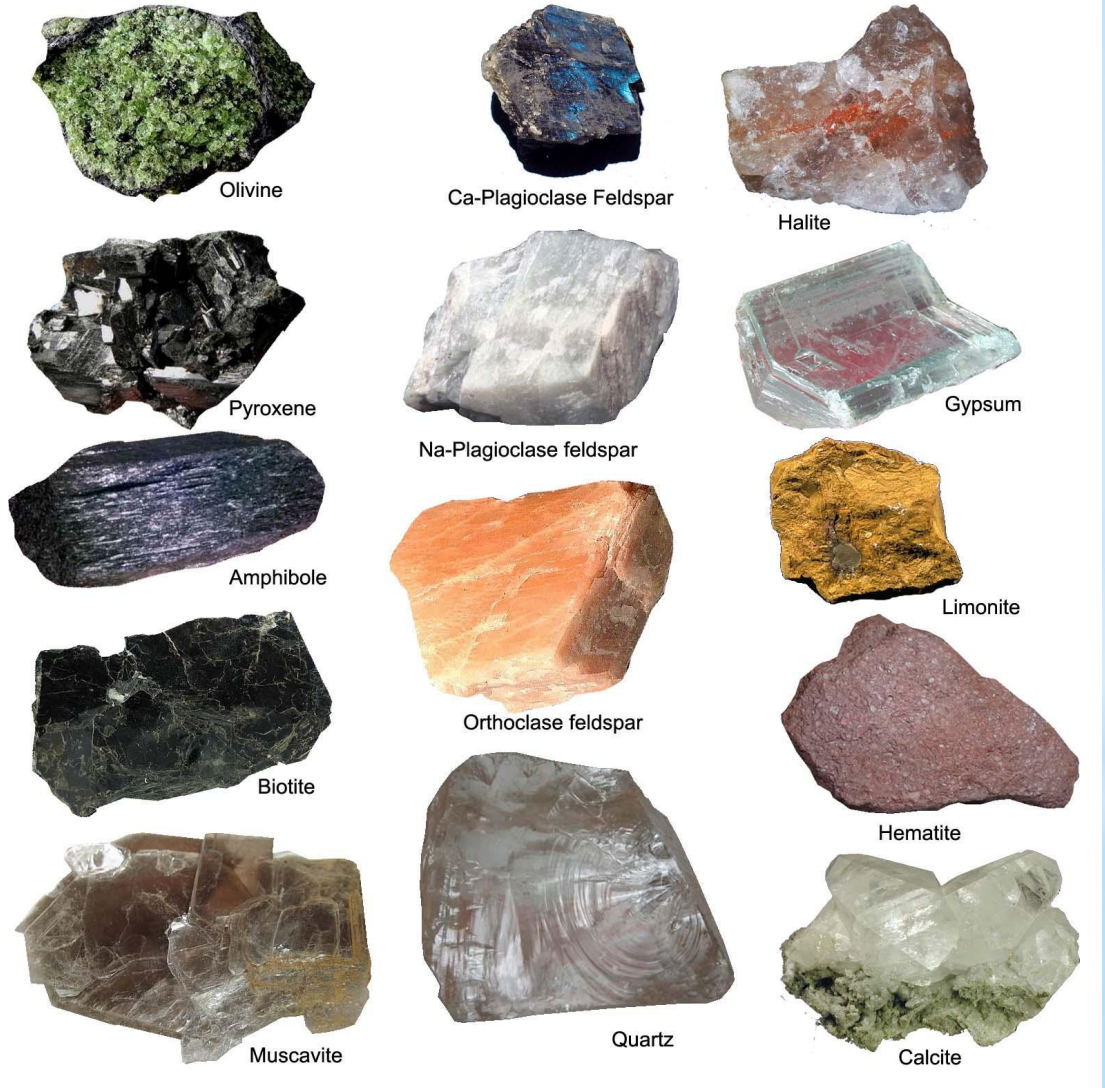
# \* Mineral classes

- \* As the composition of the Earth's crust is dominated by silicon and oxygen, silicate elements are by far the most important class of minerals in terms of rock formation and diversity. However, non-silicate minerals are of great economic importance, especially as ores.



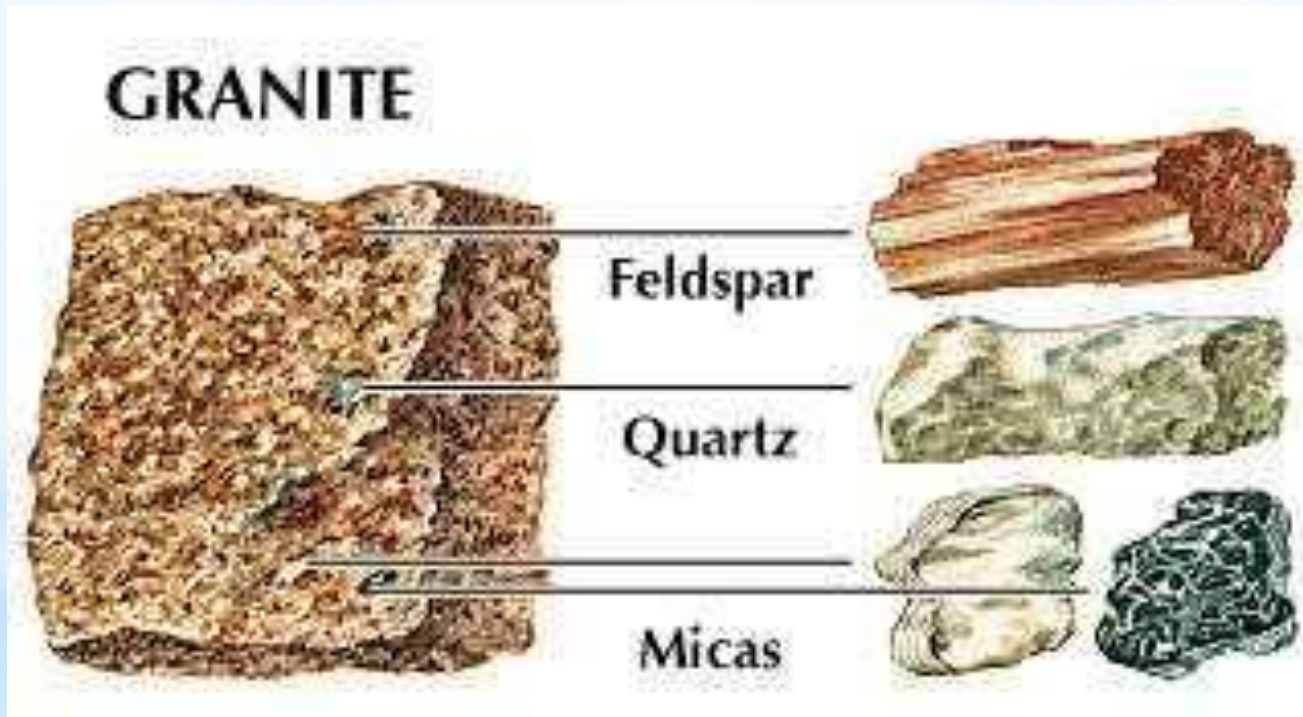
# \*Rocks, ores, and gems

\*A rock is either an aggregate of one or more minerals, or not composed of minerals at all.





- \* In rocks, some mineral species and groups are much more abundant than others; these are termed the rock-forming minerals.



\*There are about 20 mineral species that qualify as gem minerals, which constitute about 35 of the most common gemstones.



Amethyst



Aquamarine



Blue Topaz



Citrine



Diamond



Emerald



Garnet



Peridot



Pink Sapphire



Pink Tourmaline



Ruby



Sapphire



Red Jasper



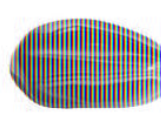
Rhodonite



Cherry Quartz



Zebra Jasper



Carnelian



Amber



Peace Jade



Moss Opal



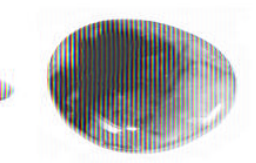
Aventurine



Blue Spot Stone



Turquoise



Fluorite



**\*Thank you for your attention**