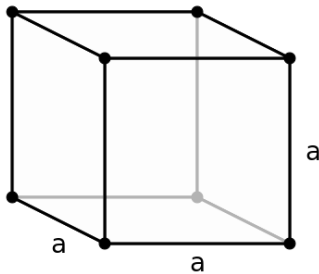


Crystal System Guide

A crystal system is defined as one of seven categories of crystals classified according to the possible relations of its crystal axes. These categories include the **cubic**, **tetragonal**, **orthorhombic**, **trigonal**, **hexagonal**, **monoclinic**, and **triclinic** crystal systems. Each system is recognized by the geometric parameters of its unit cell, which is the simplest repeating unit in the crystal.

Cubic

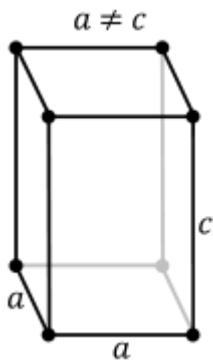
The unit cell of a crystal in the cubic crystal system is shaped like a cube. All sides (a) have the same length. All angles are 90-degree angles.



Examples: diamond, fluorite, gold, pyrite.

Tetragonal

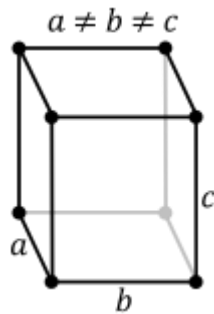
The unit cell of a crystal in the tetragonal crystal system is shaped like a rectangular prism with a square base. Its height (c) is not equal to the sides (a) of the base. Its angles are 90-degree angles.



Examples: anatase, chalcopyrite, scapolite, wulfenite, Zircon.

Orthorhombic

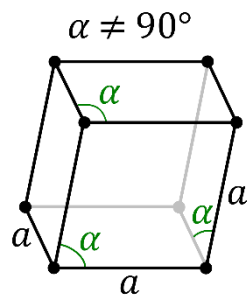
The unit cell of a crystal in the orthorhombic crystal system is shaped like a rectangular prism with a rectangular base. Its height (c) is not equal to any sides (a or b) of the base. Its angles are 90-degree angles.



Examples: Alexandrite, Celestite, Tanzanite, Topaz.

Trigonal

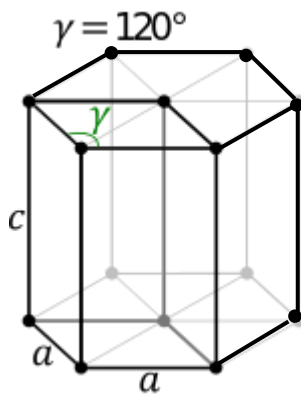
The unit cell of a crystal in the trigonal crystal system is also known as the rhombohedral system. All sides (a) are equal in length. All angles (α) are equal, and not 90-degree angles.



Examples: Amethyst, Quartz, Ruby, Tigers Eye.

Hexagonal

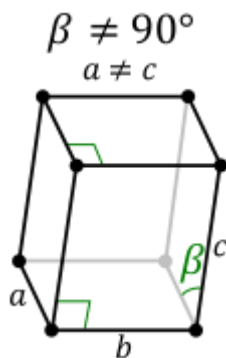
The unit cell of a crystal in the hexagonal crystal system is shaped like a prism with a hexagon base. The base sides (a) are equal in length. Its height (c) is not equal to the sides (a) of the base. Angle γ must equal 120-degrees.



Examples: Aquamarine, Emerald, Morganite, Zincite.

Monoclinic

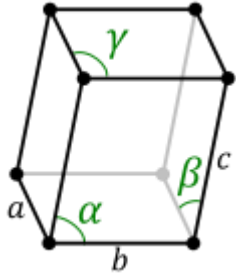
The unit cell of a crystal in the monoclinic crystal system is shaped like a rectangular prism with a parallelogram base. The sides (a , b , and c) are different lengths. Angle β is not a right angle.



Examples: Azurite, Gypsum, Hiddenite, Moonstone.

Triclinic

The unit cell of a crystal in the triclinic crystal system has the least symmetry. The sides (a & b) and the height c are different lengths. Angles α , β , and γ are different angles.



Examples: Amazonite, Labradorite, Rhodonite, Turquoise.