

1-5 In Figure 6 assume that the eight #15 spheres (blue) at the corners of the cube expand to form larger concentric spheres within the cube as shown in the middle of one side of the cube.

If we consider only the volume of enlarged spheres within the cube, one enlarged sphere has an eighth of the volume of the original sphere which represents the volume of an atom. An eighth of a sphere at the eight corners may be added to compose one complete sphere.

Next assume that spheres #17 (grey) at the center of the cube also expand to have contact with the enlarged (blue) spheres at the corners. If we regard spheres #17 (grey) as cesium (Cs) and eight #15 spheres (blue) as chlorine (Cl) atoms, the ratio of Cs atoms and Cl atoms should be one to one (1:1) in quantity.

1-6 Insert #11 bonds into the six holes on the surface of the spheres #17 (grey) located at the center of the cube in figure 5. Then put spheres other than sphere #17 (grey) and #15 sphere (blue) on the tips of the bonds.

The 1014 Student Mini Set provides no extra spheres , however the 1004 Student Crystal Structure H Set and 1006 Researcher Inorganic Chemistry D Set have colorfull spheres.

The sphere attached to the #11 bond is located at the center of the cube which is equally distant from the six planes. Once these six planes are connected through the center with the appropriate spheres and bonds a regular octahedron is formed.

This polyhedron is a unit lattice of Perovskite structure. Barium titanate (TiBaO_3) is a typical example of a Perovskite structure and the ratios of the numbers of atoms in a unit lattice are as follows: Titanate at the center of cube, $1 \cdot 1 = 1$; barium at the eight corners, $8 \cdot 1/8 = 1$; oxygen at the center of the planes, $6 \cdot 1/2 = 3$; titanate : barium : oxygen = 1 : 1 : 3.