

# SIMPLE CRYSTALLINE SOLIDS

**crystalline solid** - solid form of a substance in which the atoms or molecules are arranged in a definite pattern that is repeated in three dimensions.

**unit cell** - the smallest unit of structure of a crystal when repeated exactly in three dimensions will give the complete crystal structure.

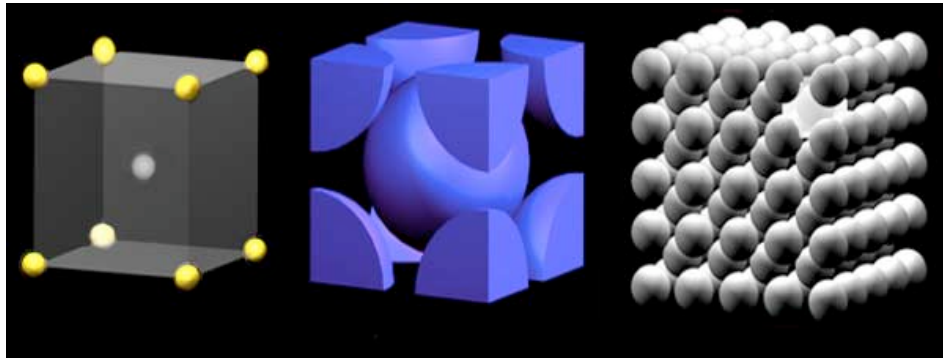
## CUBIC UNIT CELLS

### BODY-CENTERED

atoms on each corner and one in center      two atoms per unit cube

atoms "touch" diagonally through center of cube

cube side length =  $(16/3)^{1/2}$  times the atom radius



### FACE-CENTERED

atoms on each corner and on each face of the cube

atoms "touch" diagonally across each face      four atoms per unit cube

cube side length =  $8^{1/2}$  times the atom radius

