Metals and their Compounds
Lecture 3.2

Contents of unit cell

3 unit cells based on cube - simple cube, body-centered cube and face-centered cube, see BLB fig 11.31 and 11.32

Atom at corner = 1/8 (in 8 unit cells)
Atom at edge = 1/4 (in 4 unit cells)
Atom in face = 1/2 (in 2 unit cells)
Atom inside cell = 1 (only in 1 unit cell)

Simple cube:

8 atoms at corner = 8 x 1/8 = 1 complete atom

Body centered cube:

8 atoms at corner = 8 x 1/8 = 1 *complete atom*
1 atoms in middle = 1 x 1 = 1 *complete atom*
= 2 atoms in total

Face centered cube:

8 atoms at corner = 8 x 1/8 = 1 *complete atom*
6 atoms at faces = 6 x 1/2 = 3 *complete atoms*
= 4 atoms in total