



CHEMISTRY NOTEBOOK — Day 3 Update

Chapter: Solid State — Unit Cell Calculations (Part 2)

Types of Unit Cells

- **Simple Cubic (SC)**
 - $a = 2r$
 - Coordination number = 6
 - Atoms touch along edge
- **Body-Centered Cubic (BCC)**
 - $a = 4r / \sqrt{3}$
 - Coordination number = 8
 - Atoms touch along body diagonal
- **Face-Centered Cubic (FCC)**
 - $a = 2\sqrt{2} r$
 - Coordination number = 12
 - Atoms touch along face diagonal

Packing Efficiency

- SC → 52%
- BCC → 68%
- FCC → 74% (maximum)

Important Terms

- Edge length (a): Length of unit cell edge
- Coordination number: Number of nearest neighbours