



# 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