DAY 1 — Solid State Basics

1. Types of solids: ionic, covalent, metallic, molecular

2. Crystal lattice = 3D arrangement

3. Unit cell = smallest repeating unit

4. Primitive vs centered cells

5. Coordination number concept

DAY 2 — Packing Efficiency + Radius Relations

6. FCC packing efficiency = 74%

7. BCC packing efficiency ≈ 68%

8. SC packing efficiency = 52%

9. FCC relation:

$$a = \frac{4r}{\sqrt{2}}$$

10. BCC relation:

$$a = \frac{4r}{\sqrt{3}}$$

11. Number of atoms per unit cell:
    - SC = 1
    - BCC = 2
    - FCC = 4

12. Tetrahedral voids = 2 per atom

13. Octahedral voids = 1 per atom

14. Density formula:

$$\rho = \frac{ZM}{a^3 N_A}$$

(Organic reactions will be added once organic starts.)