

**Group Work Assignment #1**

September 11 2009

20 points

*only 1 handout should be returned per group***4 PEOPLE PER GROUP**

| Name (Print)  | Signature |
|---------------|-----------|
| 1. <b>KEY</b> |           |
| 2.            |           |
| 3.            |           |
| 4.            |           |

1. Fill in chart above with group names, etc
2. Build FCC, BCC, and HCP crystal structure models: refer to instruction sheet
3. Fill in the chart below
4. To receive full credit: (a) all members participate, (b) before you leave: show me all completed models, turn in this sheet (one per group), and take apart models & return items to me in their bag.
5. Return the completed form to me (only 1 handout per group).

| <b>Crystal Structure:</b>                                     | <b>FCC</b>       | <b>BCC</b>          | <b>HCP</b>      |
|---|------------------|---------------------|-----------------|
| # atoms per unit cell   | 4                | 2                   | (expanded)<br>6 |
| Coordination #  | 12               | 8                   | 12              |
| Relationship between cell edge length "a" and atomic radius R | $a = 2R\sqrt{2}$ | $a = (4R)/\sqrt{3}$ | $a = 2R$        |
| Atomic packing factor   | 0.74             | 0.68                | 0.74            |
| Close-packed? (Yes or No)                                     | Yes              | No                  | Yes             |