



4. Pauling's first Rule talks about Cation Polyhedra. This exercise is designed to get you accustomed to visualizing and reproducing two of the most common coordination polyhedra found in minerals; the Tetrahedron and the Octahedron. The first step in this exercise is to cut out and assemble the attached paper models of a Tetrahedron and an Octahedron. Familiarize yourself with the three-dimensional structure of these models. Then, you will sketch these polyhedra in the orientations outlined below on the attached piece of paper. Use solid lines to indicate edges that are in your line of sight and dotted lines to show edges that are hidden from view. You may want to practice a few times before attempting your "final draft" on this handout. Graph paper may also be of assistance in practicing these drawings. The orientations for your drawings are as follows:

a. Tetrahedron

- i. Looking down on the apex (Tetrahedron pointing up)
- ii. Looking down on the base
- iii. Looking down on an edge

b. Octahedron

- i. Looking down on an apex
- ii. Looking down at Octahedron resting on a triangular face
- iii. Looking down on an edge