Name_____

Cubic Unit Cells Model

Solid ionic compounds contain ions arranged in an orderly and repeatable pattern called a *crystal lattice*. The smallest repeating arrangement of the lattice is called the *unit cell*.

1. Examine the sodium chloride unit cell.

    a. Identify the chloride ions on each face of the cubic unit cell. How many unit cells is each "face" chloride ion part of?

    b. How many unit cells is each corner chloride ion part of?

    c. How many unit cells is each center edge sodium ion part of?

    d. How many unit cells is the sodium ion in the center of the cube part of?

The number of each ion in the unit cell is determined by adding total fractions of each ion that occupy the unit cell. This fraction is always one ion divided by the number of unit cells the ion is part of.

2. Calculate the number of chloride ions and the number of sodium ions in the sodium chloride unit cell.

3. Examine the cesium chloride unit cell. Calculate the number of chloride ions and the number of cesium ions in the unit cell.