

1. Listed below are 5 minerals/compounds and their chemical formulas.
2. To the right of each individual element, fill the electron shells.
3. To the left of each symbol, put the oxidation # or ionization #.
4. Next, study the outside electron shell numbers and try to figure out the bonding.
5. Use arrows and numbers to show the bonding and octet rule.
6. Challenge: Try the "Lewis Dot Diagrams" in last column when you are finished with middle column.

→ THE FIRST ONE IS COMPLETED AS AN EXAMPLE

COMPOUND	Electron Shells by # to right of symbol	Dot Diagrams with valence electrons
HALITE NaCl	$ \begin{array}{cc} \text{ } & \text{17} \\ +1 \text{Na} & -1 \text{Cl} \\ \text{2} & \text{7} \\ \text{1} & \text{7} \end{array} $	$ \begin{array}{cc} \text{Na} & \cdot\ddot{\text{Cl}}: \\ & \cdot\cdot \end{array} $
CALCITE CaCO ₃	$ \begin{array}{cc} \text{Ca} & \text{O} \\ & \text{O} \\ \text{C} & \text{O} \end{array} $	
FLUORITE CaF ₂	$ \begin{array}{cc} \text{Ca} & \text{F} \\ & \text{F} \end{array} $	
QUARTZ SiO ₂	$ \begin{array}{cc} \text{Si} & \text{O} \\ & \text{O} \end{array} $	
OLIVINE Mg ₂ SiO ₄	$ \begin{array}{cc} \text{Mg} & \text{O} \\ \text{Mg} & \text{O} \\ & \text{O} \\ \text{Si} & \text{O} \end{array} $	

over →

Chemical formula	# of elements	# of atoms	# of compound	# of molecules
NaCl				
CaCO ₃				
CaF ₂				
SiO ₂				
Mg ₂ SiO ₄				
Al ₂ O ₃				
KAl ₃ Si ₃ O ₁₀ (OH) ₂				

In the table above, figure out how many elements, atoms, compounds, and molecules are in each chemical formula.