UNIT 4 BONDING

- Students will be able to define ionic and covalent bonding.
- Given a list of compounds, students will be able to classify (label) the compounds as either molecular or ionic.
- Given a list of compounds, students will be able to classify the bonds within the compound as polar covalent, nonpolar covalent, or ionic.
- Given a list of compounds, students will be able to classify (label) the compounds as polar molecule, nonpolar molecule, and ionic.
- Students will be able to describe covalent bonding.
- Students will be able to define a molecule.
- Students will be able to define the octet rule.
- Given nonmetals, students will be able to determine the correct formula for the formation of the compound.
- Given a Periodic Table of Elements, students will be able to draw the electron dot diagram (Lewis Dot Diagrams) for main group elements.
- Given a Periodic Table of Elements and at least two nonmetal elements, students will be able to draw the structural diagram (Lewis Structures) for the compound, obeying the octet rule.
- Students will be able to define single, double, and triple bonds for covalent compounds.
- Given a covalent compound with multiple bonds, students will be able to draw the resonance structure for the compound.
- Students will be able to describe ionic bonding.
- Students will be able to define a formula unit.
- Given a Periodic Table of Elements and a main group element, students will be able to identify the charge when the element loses or gain electrons.
- Given a Periodic Table of Elements, students will be able to predict the number of electrons lost or gained for the main group elements.
- Given a metal and a nonmetal, students will be able to determine the formula of an ionic compound using the appropriate subscripts.
- Students will be able to describe two differences between an ionic and covalent compound.
- Given a list of polyatomic ions (names and formulas), students will be able to recognize (circle, label or write) polyatomic ions in a formula.
- Students will be able to define metallic bonding.
- Students will be able to use the VSEPR theory to draw covalent compounds using their proper geometry.
- Students will be able to name the shape of the bonding on the central atom of a covalent compound.
- Students will be able define hybridization.
- Given a covalent compound, students will be able to determine the hybridization of the central atom.
- Students will be able to define intermolecular forces.
- Students will be able to describe London Forces.
- Students will be able to describe hydrogen bonding.
- Given a covalent compound, students will be able to identify (draw) the polar ends, (+) and (-), of the compound.
- Given a compound, students will be able to describe the intermolecular forces effect on the boiling point.
- Given a compound, students will be able to calculate the number of atoms and or ions present in the compound.

- Given a Periodic Table of Elements, the students will be able to determine the charge for the main sequence elements when they lose or gain electrons.
- Given a Periodic Table of Elements, students will be able to predict the number of electrons lost or gained for the main group elements.
- Given a Periodic Table of Elements and a monatomic ion, students will be able to properly name the ion.
- Given a Periodic Table of Elements and a d-block ion, students will be able to write the proper name of the d-block ion.
- Given a Periodic Table of Elements, a metal, and a nonmetal; students will be able to write the formula of the ionic compound using subscripts where appropriate.
- Given a Periodic Table of Elements and binary ionic compound, students will be able to write the name of the formula for the binary ionic compound using roman numerals where appropriate.
- Given a Periodic Table of Elements, Polyatomic ion chart, and ternary compound, students will be able to name the ternary compound.
- Given a Periodic Table of Elements, Polyatomic ion chart, and formula (name) of a ternary compound, the students will be able to write the formula using subscripts, parentheses, and roman numerals where appropriate.
- Given a Periodic Table of Elements and binary molecular compound, students will be able to name the binary molecular compound.