**IB Chemistry Summer Review (Year Two)**

**Ms. Borden**

You will not have summer work assigned- enjoy your time off! Still, you should remember the content we covered in Year 1, as we will be referencing it and using it throughout the second year of the course, and it will of course be tested on the external assessment papers in May.

Review the list of topics below to make sure you understand all the content from the previous year. If you are not confident in any topic, use your notes from last year to review. You can also utilize IB-specific online resources like:

* <https://ibchem.com/htm/ibsyllabus.htm>
* <https://www.mrwengibchemistry.com/>
* <http://ibalchemy.com/>
* <http://www.msjchem.com/>
* Khan Academy or other tutorial videos (be aware that these are often not designed for IB and may include extra content, or exclude things you should know).

**IB Year 1 Content**

Topic 1 and 11: Stoichiometry and experimental skills

* Error, accuracy, and uncertainty
* Chemical formulas, percent composition, molar mass
* Gas laws
* Stoichiometry, limiting reagents, and percent yield
* Molarity and solutions
* Titrations

Topic 2/12: Atomic structure

* Atomic structure, subatomic particles, average atomic mass
* Emission spectra and the Bohr model
* Energy, frequency, and wavelength
* The quantum model, orbital diagrams, electron configurations

Topic 3/13: Periodicity

* Periodic trends
* Successive ionization energies
* Transition metal chemistry

Topic 4/14: Chemical bonding and structure

* Ionic bonding and structure
* Metallic bonding and structure
* Covalent bonding and bond polarity
* Further aspects of bonding (sigma and π)
* Lewis dot structures and formal charges
* Resonance and bond order
* VSEPR theory
* Hybridization
* Molecular polarity and intermolecular forces

Topic 5/15: Thermochemistry

* Calorimetry
* Enthalpy of reactions
* Bond enthalpies
* Hess’s law
* Enthalpy cycles
* Spontaneity, entropy, and Gibbs free energy

Topic 6/16: Kinetics

* KMT and collision theory
* Factors affecting reaction rate
* Experimental determination of reaction rate
* Rate laws and reaction order
* Reaction mechanisms
* Activation energy

Topic 7/17: Equilibrium

* Properties of equilibrium systems
* Equilibrium constants
* ICE charts
* Gibbs free energy and equilibrium
* Reaction quotient
* Factors affecting equilibrium and Le Chatelier’s principle