SUMMER CHEMISTRY ASSIGNMENT/STUDY GUIDE

Topics to Study/Review Heavily (Will be foundational to the course without much review)

- Naming and writing formulas for Ionic and Covalent compounds
- Unit Conversions/Dimensional Analysis
- Significant Figures
- Stoichiometry (grams, moles, volume, molecules conversions)
- Titration Method and Math/Calculations
- Writing balanced equations and predicting products (solubility rules, activity series)
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Trusted Internet Sources:

Khan Academy Chemistry: <u>https://www.khanacademy.org/science/chemistry</u> ChemGuide – UK: <u>http://www.chemguide.co.uk/</u> Crash Course Chemistry: <u>https://www.youtube.com/playlist?list=PL8dPuuaLjXtPHzzYuWy6fYEaX9mQQ8oGr</u>

PLAN FOR YOUR INTERNAL ASSESSMENT

Choosing a Question for your IA:

1. The topic of investigation should be part of the IB chemistry syllabus. It can be SL material, HL material or any of the options BUT it should be connected to the official IB syllabus.

Below are the Required IB Conceptual Lab (Required Experiments):

- a. **Topic 1.x.** The obtaining and use of experimental data for deriving empirical formulas from reactions involving mass changes.
- b. **Topic 1.3.** Use of the experimental method of titration to calculate the concentration of a solution by reference to a standard solution.
- *c. Topic 1.3. Obtaining and the use of experimental values to calculate the molar mass of a gas from the ideal gas equation.*
- *d. Topic 5.1. A calorimetry experiment for an enthalpy of reaction should be covered and the results evaluated.*
- e. Topic 8.2. Candidates should have experience of acid-base titrations with different indicators.
- f. Topic 8.3. Students should be familiar with the use of a pH meter and universal indicator.
- g. **Topic 9.2.** Performance of laboratory experiments involving a typical voltaic cell using two metal/metal-ion half-cells.
- h. Topic 10.1. Construction of 3D models (real or virtual) of organic molecules.
- *i.* **Topic 15.1/19.1.** Perform lab experiments, which could include single replacement reactions in aqueous solutions.

- 2. It is often a good idea to extend or modify a lab you have already done.
- 3. You must have a way to analyze graphical data (including a trend line and R² value). This means that both the independent and dependent variables should be quantifiable. For example, "which antacid" does not allow for that kind of analysis, and would be limited to a bar graph.
- 4. If your experiment involves a technique that you have never done before, you are on your own to learn the technique (YouTube, anyone?).
- 5. We must have a good idea of what your experiment will be the first week of school (2021- 2022) so that chemicals can be ordered if necessary.
- 6. When thinking about ordering chemicals for specific experiment, think about the quantity you will need as well as which ones.
- 7. I will not allow any two students to perform the same (although might be similar in terms of techniques) labs. First come gets priority.

NOTE: In the second attachment, find an extremely important GUIDE for writing a GOOD IB CHEMISTRY LAB/REPORT.

Have a fantastic SUMMER!