

# Trinity Catholic High School

## Advanced Placement Summer Work



# AP Chemistry

# AP Chemistry

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**First**, you have taken on a class that is worthwhile and beneficial but is also difficult and hard. You will spend many nights studying, reviewing, practicing, calculating, and memorizing. The reward on the other side of these long, arduous nights is a passing score on the AP Chemistry exam and an A in my class. The benefits don't stop there! You will be more prepared for college having already taken a rigorous course!

**Second**, you have a summer assignment to review some general chemistry learned in your intro level chemistry class. Science is ever changing, so more and more material is added onto the AP exam. For us to finish all the material, you must have a solid grasp on the concepts covered in the summer assignment. The summer assignment consists of videos and questions. Please watch the videos and take notes as if I was lecturing you in class. Once you have taken sufficient notes, answer the questions attached. I will be collecting both the notes and the worksheet for credit. Please make sure your notes are titled with each concept.

**Third**, you can email me throughout the summer to ask any questions. I would rather you work on this assignment 20 minutes a day until you finish, but I understand that we have summer vacations that get in the way. Do not try to complete this assignment in one sitting.

**Fourth**, you will have a test on this material on the third day of school. This will be your first summative test grade for Quarter 1. Getting an A on this assessment is a good indicator of being successful in the class. Students getting below a C should seriously consider dropping the class or begin attending FLEX weekly.

**Finally**, AP Chemistry becomes a family throughout this whole process. So really decide if you're willing and ready to be part of this awesome AP Chem family.

# AP Chemistry

## Watch the following videos:

Protons, Neutrons, & Electrons: <https://expl.ai/THMMBNA>

Naming Compounds: <https://expl.ai/TSEPHRG>

Molar Mass: <https://expl.ai/XRRBHGN>

Predicting Products: <https://expl.ai/VCUBQXB>

Balancing Equations: <https://expl.ai/SOUXOCT>

Electron Configurations: <https://expl.ai/MSVDJFN>

Stoichiometry:

<https://www.educations.com/lesson/view/stoichiometry-study-guide/58843207/?s=poa014&ref=link>

Empirical Formula:

<https://www.educations.com/lesson/view/empirical-formula-video-lesson/53434714/?s=LanM92&ref=link>

Molecular Formula:

<https://www.educations.com/lesson/view/molecular-formula-video-lesson/53774858/?s=gB8B0g&ref=link>

Percent Composition:

<https://www.educations.com/lesson/view/percent-composition-video-lesson/53109739/?s=KHYjGG&ref=link>

Name \_\_\_\_\_

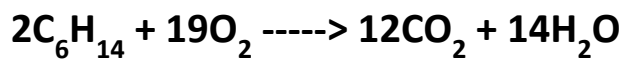
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## AP Chemistry Summer Work

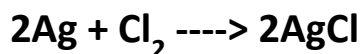
1. List all the diatomic molecules.
2. How many grams are 0.5 moles of  $(\text{NH}_4)_2\text{CO}_3$ ?
3. How many moles are in  $3.5 \times 10^{23}$  atoms of helium?
4. How many moles are in  $4.6 \times 10^{25}$  atoms of argon?
5. What is the percent composition of each element in  $\text{Na}_2\text{O}$ ?
6. What is the percent composition of each element in  $\text{CaCl}_2$ ?

7. A piece of iron ore is found to contain a compound containing 72.3% iron and 27.7% percent oxygen.
- Determine the empirical formula of this iron ore.
  - The iron ore has a molar mass of 231.4 g/mol. Determine the molecular formula of the ore.
8. A major textile dye manufacturer developed a new yellow dye. The dye has a percent composition of 75.95% C, 17.72% N, and 6.33% H by mass.
- Determine the empirical formula of this new yellow dye.
  - The yellow dye has a molar mass of about 240 g/mol. Determine the molecular formula of the dye.

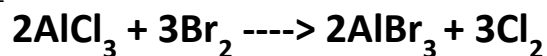
9. Hexane ( $\text{C}_6\text{H}_{14}$ ) burns in oxygen to produce carbon dioxide and water. How many moles of water are produced from 8.8 g of hexane?



10. If 4.2 g Ag and 4.8 g  $\text{Cl}_2$  are mixed together and heated, which substance will limit the reaction?



11. What mass of aluminum bromide ( $\text{AlBr}_3$ ) is produced from the combination reaction between 16.5 g aluminum chloride ( $\text{AlCl}_3$ ) and 84.5 g  $\text{Br}_2$ ?



12. Write the electron configuration for the following elements:

- Helium
- Phosphorus
- Argon
- Calcium

Predict the products and balance the equation.

