IB Chemistry 12 (Higher Level)

Course Overview

Course Description

Chemistry is the study of matter and energy. All matter is made of tiny particles that display certain properties. How these properties are arranged and how they behave determine properties of materials in the world around us. We will study the changes that occur when matter and energy interact, examining the theories and ideas that have led to scientific discoveries which we use every day.

In addition, we will emphasize the skills necessary for students to become self-reliant, lifelong learners who are scientifically literate, to help prepare them for both the workplace and/or college in addition to being productive and responsible citizens. These include communication, time-management, self-advocacy, punctuality, organization and personal responsibility.

IB Chemistry 12 (HL) is a 40 week course which fulfills one credit of science.

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Goals / Objectives

This is an *advanced*, college-preparatory course. Independent study as well as direct instruction will take place weekly. Students will continue on their path towards being lifelong, inquisitive learners and will leave with a solid base of scientific knowledge and skills for future study in the sciences as well as having developed positive learning habits.

IB Chemistry 12 is designed to be year two of a two year sequence where students will challenge the IB Chemistry Exam at the conclusion of the second year. Students will be engaged in laboratory experiments and will complete an Individual Investigation, which is a requirement of the course.

Suggested Materials

- 1 composition notebook (helps with organization and consolidation of notes)
- Calculator

Out of Class & Classroom Resources

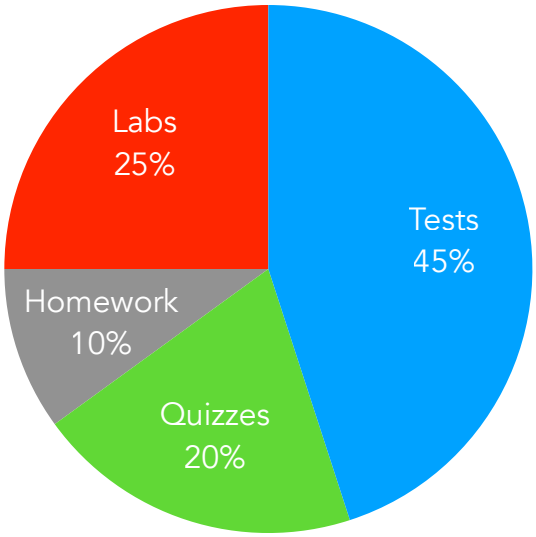
- I maintain a web site that houses all of the lecture notes, homework assignments and additional resources which include a calendar of upcoming assignments, lecture videos, simulations and activities. It is the student's responsibility to use this web site to their advantage (http://drgchemistry.weebly.com).
- Google Classroom is the current district platform for other resources. All textbook material (included worked solutions) are posted here.

Grading / Evaluations

Your grades will be based on a weighted average. Test take the form of traditional multiple choice / short answer assessments, modeled after IB test questions. Test corrections are allowed and result in the return of some points based on a curve.

Tests/Quizzes

Exams will be given at the completion of each unit. Students will be notified of exam dates in advance. **Communication from the student to the teacher if a student is absent the day of an assessment is STRONGLY encouraged.** The expectation is a student will make up the missed assessment after a mutually agreed upon date. Test corrections will typically be completed one week after the respective exam has been returned.



Classwork/Homework

Practicing the concepts we're learning in class is an essential component to learning and understanding. Interesting and pertinent homework assignments will be given throughout the year (and will be available online). **Late homework assignments will receive a penalty.** Sufficient time will be given to complete assignments so long as the student manages in-class and at-home time appropriately. No more homework is given than is outlined by the district homework policy. Not all homework will be graded as this is treated like a college course. However, it will be announced when an assignment will be graded.

Individual Investigation

During your two-year IB Chemistry course, you are expected to carry out an individual scientific investigation (IA), sometimes known as an **exploration**. This must be written up as a full report, and contributes to your final assessment on the course. The investigation will be based on a topic of your own interest, and have a purposeful research question and scientific rationale. Your approach and methodology may rely on the collection of primary data through experimental work, or it may involve analysis of secondary data. The IA is typically introduced in January and completed in late March.

The investigation is marked according to the same five criteria: Personal Engagement, Exploration, Analysis, Evaluation and Communication. A rubric is provided in your textbook.

Course Topics

Matter & Energy
Atomic Structure
Periodic Table
Bonding
Physical Properties of Matter
Solutions
Kinetics
Stoichiometry
Gases
Acids & Bases
Energetics
Thermodynamics
Organic Chemistry
Oxidation & Reduction
Instrumental Analysis