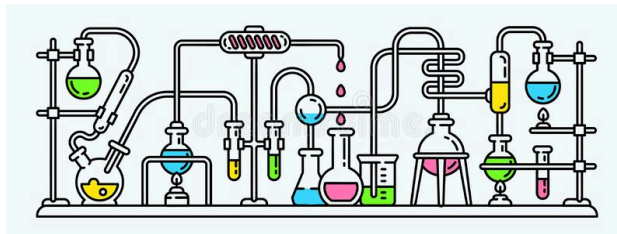


VAMPY Chemistry Summer 2024

Instructor: Trevor Webster

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Students in this course will take an in-depth look into matter and energy. The textbook used as a resource is [HMH Science Dimensions J: Chemistry](#). Each day students will be engaged in lessons that will develop their chemical content knowledge, critical thinking abilities, and problem solving skills. By the end of the course, successful students will be able to demonstrate a basic understanding of the structure and properties of chemical systems using the practices of the discipline including: developing and using models; analyzing and interpreting data; using mathematics and computational thinking; designing and conducting experiments; obtaining, evaluating and communicating information; and more. Through participation in course activities students will gain experience in the cross-cutting concepts of cause and effect, patterns, structure and function, stability and change, and scale, proportion and quantity. Students will participate in at least one laboratory activity daily, along with engaging demonstrations that develop interest and curiosity about the content. (They will be expected to adhere to the safety rules set forth on the first day of class.) Throughout the class, students will also have problem-solving opportunities as they develop a deep understanding of chemistry content.

Topics Covered:

Introduction to Matter and Energy
States of Matter
Chemical and Physical Changes
Density
Kinetic-Molecular Theory
Atomic Structure
Isotopes and their Formation in Star Life Cycle
Stability & Radioactivity
Nuclear Changes
Periodic Table Arrangement
Electromagnetic Radiation
Periodic Trends (Valence Electrons, EN)
Ionic Bonding & Nomenclature

Covalent Bonding & Nomenclature
Acid Nomenclature
Organic Nomenclature
Chemical Reactions & Balancing Equations
Predicting Products in Reactions
Acid-Base Neutralization Reactions
Reaction Rates
Thermochemistry
The Mole as a Counting Unit
Stoichiometry
Gas Laws
Chemistry of Photography
Chemistry of Paint

The class will include practice in class as well as readings. Periodically students will be assessed which will provide information for the evaluation at the end of the course.