

This year your child's curriculum will include the following:

Unit One: Matter and Energy

Curricular Materials Utilized: Prentice Hall Chemistry. Students in the Honors Chemistry program are taking the Honors level course in preparation for AP Chemistry. This course covers all required 11th grade state science standards and additional key chemistry concepts needed for the next level of chemistry.

Unit Overview: This unit is designed to continue students' understanding of freshmen science and the freshmen chemistry unit. This unit starts out with an introduction to chemistry, a review of matter and atoms, and an in-depth study of atomic structure. This unit also includes an in-depth study of the states of matter and solutions. Matter and how energy affects matter are the key focuses of this unit.

Essential Questions:

- What is chemistry and what are some important tools of science used in chemistry?
- What role do matter and its properties play on the structure and function of a substance?
- How has atomic theory changed our understanding of the structure and properties of matter?
- What is radioactive decay and what role does it play in changes within the nucleus?
- What are the different types of solutions used in Chemistry?
- How do the properties and behaviors of solids, liquids, and gases compare?

Unit 2: Bonding and the Periodic Table

Curricular Materials Utilized: Prentice Hall Chemistry. Students in the Honors Chemistry program are taking the Honors level course in preparation for AP Chemistry. This course covers all required 11th grade state science standards and additional key chemistry concepts needed for the next level of chemistry.

Unit Overview: The major theme throughout this unit is the study of the patterns of the periodic table and its role in determining how elements/atoms bond to one another. The key focus of this unit is to illustrate to students the importance of the periodic table and how to use it to determine the types of bonds an element can make with other elements.

Essential Questions:

- How can we use the periodic table to tell us important information about the elements?
- What role does the electron play in atomic structure and elemental properties?
- How does the formation of chemical bonds make atoms more stable?

Unit Three: Chemical Reactions and Calculations

Curricular Materials Utilized: Prentice Hall Chemistry. Students in the Honors Chemistry program are taking the Honors level course in preparation for AP Chemistry. This course covers all required 11th grade state science standards and additional key chemistry concepts needed for the next level of chemistry.

Unit Overview: This unit focuses on the importance of mathematics in chemistry. Students are required to solve chemical word problems including molar calculations and stoichiometry using the process of dimensional analysis and proper significant figures. This unit also introduces students to types of reactions, the role of heat in chemical reactions, and what changes can occur in the nucleus of the atom (nuclear chemistry).

Essential Questions:

- What is the purpose of using significant figures and dimensional analysis in chemistry?
- What role does heat play in a chemical reaction?
- What are chemical equations, how are they balance and how is reaction type determined?
- What is a mole and how is it used to measure chemical quantities?
- What is stoichiometry and how is it used to solve chemical word problems?