

What your child will learn:

Chemistry

Chemistry is the study of matter, its properties, how and why substances combine or separate to form other substances, and how substances interact with energy.
In Chemistry class,

The student will explain that atoms have structure and this structure serves as the basis for the properties of elements and the bonds that they form.

- The student will analyze the structure of the atom and describe the characteristics of the particles found there.
- The student will demonstrate that the arrangement and number of electrons and the properties of elements repeat in a periodic manner illustrated by their arrangement in the periodic table.
- The student will explain how atoms interact with other atoms through the transfer and sharing of electrons in the formation of chemical bonds.

The student will explain how the properties of compounds are related to the arrangement and type of atoms they contain.

- The student will explain how the properties of a molecule are determined by the atoms it contains and their arrangement.
- The student will explain why organic compounds are so numerous and diverse.
- The student will describe the properties of solutions and explain how they form.
- The student will differentiate among acids, bases, and salts based on their properties.

The student will apply the basic concepts of thermodynamics (thermochemistry) to phases of matter and phase and chemical changes.

- The student will explain that thermal energy in a material consists of the ordered and disordered motions of its colliding particles.
- The student will describe observed changes in pressure, volume, or temperature of a sample in terms of macroscopic changes and the behavior of particles.
- The student will explain why the interactions among particles involve a change in the energy system.

The student will explain how and why substances are represented by formulas.

- The student will illustrate that substances can be represented by formulas.
- The student will show that chemical reactions can be represented by symbolic or word equations that specify all reactants and products involved.
- The student will use mole relationships.

The student will explain that matter undergoes transformations, resulting in products that are different from the reactants.

- The student will describe the general types of chemical reactions.
- The student will balance simple equations.
- The student will demonstrate that adjusting quantities of reactants may affect the amounts of products formed.
- The student will recognize that chemical reactions occur at different speeds.