

Chemistry Essential Questions

Atoms & Matter

1. How is matter characterized?
2. How do properties provide evidence of the identity of materials?
3. How do changes affect the properties, identities, and interactions of matter?
4. How do the various atomic models compare with current scientific evidence?
5. How do models in science change over time?

The Periodic Table

1. How does the structure of the periodic table allow us to predict the chemical and physical properties of an element?
2. How is the periodic table a template of organization for the material world?

Bonding & Nomenclature

1. How does a study of valence electrons help to explain most chemical phenomena?
2. How does chemical naming exhibit organizational patterns?

Chemical Quantities

1. How is matter quantified?
2. How do mathematical relationships and experimental data relate to chemical formulas?
3. What role does conservation play in mole relationships?

Chemical Reactions

1. What role does chemistry play in the world around us?
2. How has chemistry affected the growth of society?
3. How does chemical kinetics impact industrial development?

Stoichiometry

1. How is matter quantified?
2. How does industry utilize stoichiometry to maximize production?
3. How does society solve problems?

Gases & Kinetic Theory

1. How are the gas laws useful in daily life?
2. What is chemistry's role in other scientific disciplines?

Organic Chemistry

1. Understand basic nomenclature and how organic chemistry is important to society

Bio-Chemistry

1. Understand how biochemistry relates to the human body
2. Understand the ethics involved with Biochemistry
3. Recognize the limits of current science understanding and technology

Acids, Bases, & Solutions

1. How does the solution concentration affect the properties of the solution?
2. How are acids and bases important in living things?

Thermo-chemistry

1. How is energy transferred in chemical systems?
2. How does the potential energy and kinetic energy of molecules change during thermo- dynamic processes?

Oxidation / Reduction

1. How do electron transfers occur in nature?