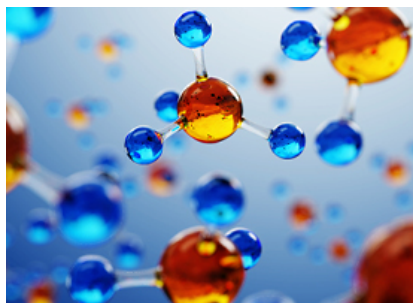




Science2Go is a digital learning solution that offers a new approach to laboratory education for middle and high school students. It allows students to engage in science and engineering practices in any learning environment without access to supplies or equipment. It can be used in-school as prelab work or in classrooms where complete hands-on labs are not possible. Because the lab solutions are online, they are ideal for remote learning. Science2Go combines videos focused on lab techniques and data collection with downloadable, editable worksheets intentionally designed to engage students in science and engineering practices. Students observe and refine experiments, identify design flaws, analyze data, and practice scientific reasoning while connecting science to natural phenomena.

Chemistry Overview



Chemistry includes ten labs:

- Chemical Bonds
- Chemical Reactions
- Atomic Structure
- Stoichiometry
- Kinetics
- Chemical Equilibrium
- Acids and Bases
- Thermodynamics
- Intermolecular Forces
- Electrochemistry

The labs are aligned to the NGSS and other state science standards and can be used with any textbook curriculum. Labs can be accessed on any internet-capable device and can be completed in 30-45 minutes.



Atomic Structure

Performance Expectations

HS-PS1-1: Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms.

Science and Engineering Practices

Asking questions and defining problems

Planning and carrying out investigations

Analyzing and Interpreting Data

Constructing Explanations

Crosscutting Concepts

Patterns

Chemical Bonds

Performance Expectations

HS-PS1-1: Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms.

Science and Engineering Practices

Asking questions and defining problems

Planning and carrying out investigations

Analyzing and interpreting data

Using mathematics and computational thinking

Crosscutting Concepts

Cause and Effects

Patterns

Chemical Reactions

Performance Expectations

HS-PS1-2: Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties.

Science and Engineering Practices

Asking questions and defining problems

Planning and carrying out investigations

Analyzing and Interpreting Data

Constructing Explanations

Crosscutting Concepts

Patterns



Stoichiometry

Performance Expectations

HS-PS1-7: Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.

Science and Engineering Practices

Asking questions and defining problems

Analyzing and interpreting data

Using mathematics and computational thinking

Crosscutting Concepts

Energy and Matter in Systems

Kinetics

Performance Expectations

HS-PS1-5: Apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs.

HS-PS1-7: Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.

Science and Engineering Practices

Asking questions and defining problems

Planning and carrying out investigations

Analyzing and interpreting data

Using mathematics and computational thinking

Crosscutting Concepts

Cause and Effects

Systems and System Models

Energy and Matter

Patterns



Chemical Equilibrium

Performance Expectations

HS-PS1-6: Refine the design of a chemical system by specifying a change in conditions that would produce increased amounts of products at equilibrium.

Science and Engineering Practices

Analyzing and interpreting data
Using mathematics and computational thinking
Constructing Explanations
Developing Models

Crosscutting concepts

Patterns
Systems and system models

Acids and Bases

Performance Expectations

HS-PS1-1: Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms.

Science and Engineering Practices

Analyzing and interpreting data
Engaging in Argument from Evidence
Constructing Explanations
Developing Models

Crosscutting Concepts

Patterns
Scale, proportion, and quantity

Thermodynamics

Performance Expectations

HS-PS1-4: Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.

Science and Engineering Practices

Analyzing and interpreting data
Engaging in Argument from Evidence
Constructing Explanations
Developing and Using Models

Crosscutting Concepts

Patterns
Energy and Matter



Intermolecular Forces

Performance Expectations

HS-PS1-3: Plan and conduct an investigation to gather evidence to compare the structure of substances at the bulk scale to infer the strength of electrical forces between particles.

Science and Engineering Practices

Analyzing and interpreting data
Engaging in Argument from Evidence
Constructing Explanations
Developing and Using Models

Crosscutting Concepts

Patterns
Cause and Effect
Structure and Function

Electrochemistry

Performance Expectations

HS-PS1-2: Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties.

Science and Engineering Practices

Asking questions and defining problems
Planning Investigations
Engaging in Argument from Evidence
Obtaining, Evaluating, and Communicating Information

Crosscutting Concepts

Cause and effect
Systems and system models