

Chemistry Course Syllabus for Distance Learning

The following Chemistry Units can be found on the website

Chemistry Matters <https://www.gpb.org/chemistry-matters>

Unit 2. **Introduction of Matter** (**All** the Segments)

Segment A (Properties of Matter) **through** Segment I (Mixture Challenge Results)

Unit 5. **Chemical Reactions** **Just**

Segment A (Balancing Equations)

Unit 6. **The Mole and Stoichiometry** (All Segments)

Segment A (Dimensional Analysis) **through** Segment G (Combustion Lab Results)

Unit 3. **Atomic Structure** **Just**

Segment A (Atomic Models),

Segment B (The Periodic Table), &

Segment C (Characteristics of Electrons)

Weekly Assignments for April 1- 8

Unit 2. **Introduction to Matter** <https://www.gpb.org/chemistry-matters>

Segment A. Properties of Matter

Students explore the chemical and physical properties of matter and discover how scientific ideas are connected to each other rather than existing in isolation.

Segment B. Density Lab Results/ Crush Lab

Students continue their discussion of penny densities in this segment and begin a crushing experiment to examine the different physical properties of chemicals.

Segment C. Physical Properties and Phase Change

In this segment, we continue with our exploration of physical properties, including brittleness and malleability. We also learn about phase changes and observe a demonstration on the freezing point of water.

Weekly Assignments for April 8- 15

Unit 2. **Introduction to Matter** <https://www.gpb.org/chemistry-matters>

Segment D. Phase Change Demonstrations

Dr. Adrian Elliott from the Fernbank Science Center joins us in this segment for a special interview, and our students discuss sublimation and deposition.

Segment E. Chemical Properties

During this segment, we learn the difference between chemical and physical properties, and we see a demonstration of reactivity.

Segment F. Mixtures

Homogeneous and heterogeneous mixtures are the focus of this segment as well as solutions and alloys.

Weekly Assignments for April 15 - 22

Unit 2. **Introduction to Matter** <https://www.gpb.org/chemistry-matters>

Segment G. Separation of Mixtures

In this segment, students learn how to separate particles from a mixture while completing a candy chromatography lab.

Segment H. Chromatography

Our students begin this segment by discussing the results of their candy chromatography experiment. Then they're given an engineering design challenge to further explore the process of separating solutions.

Segment I. Mixture Challenge Results & Water Treatment

In this segment, our students discuss the results of their engineering design challenge and we hear from special guest Stan Brinkley, with the Cobb County Marietta Water Authority.

Weekly Assignments for April 22 - 29

Unit 5. Chemical Reactions & Unit 6. The Mole & Stoichiometry

<https://www.gpb.org/chemistry-matters>

Unit 5.

Segment A. Balancing Equations

The law of conservation of mass and balancing equations are the focus of this segment.

Unit 6.

Segment A. Dimensional Analysis

Stoichiometry is introduced in this segment, and the students discuss the basics of dimensional analysis.

Segment B. The Mole

This segment examines the mole and Avogadro's number. The students continue their exploration of dimensional analysis.

Weekly Assignments for April 29 – May 6

Unit 6. The Mole & Stoichiometry <https://www.gpb.org/chemistry-matters>

Segment C. Percent Composition & Empirical Formula

The topics found within this segment include converting moles to liters as well as calculating percent composition, empirical formulas, and molecular formulas.

Segment D. Stoichiometric Calculations

This segment explores stoichiometric calculations and mole ratios.

Segment E. Limiting Reactants

This segment explores limiting reactants as we watch the students perform a lab with s'mores.

Weekly Assignments for May 6 - 13

Unit 6. **The Mole & Stoichiometry** <https://www.gpb.org/chemistry-matters>

Segment F. Combustion Lab

In this segment, the students discuss the ratios they have calculated in a rocket combustion lab.

Segment G. Combustion Lab Results

The students analyze data from the rocket combustion lab started in the previous segment and hear from special guest Dr. David Gottfried about nanotechnology.

Weekly Assignments for May 13-20

Unit 3. **Atomic Structure** <https://www.gpb.org/chemistry-matters>

Segment A. Atomic Models

In this segment, the students learn about different models of the atom, including Dalton's model, Thomson's model, Rutherford's model, and the Bohr model.

Segment B. The Periodic Table

The periodic table is the focus of this segment. The students explore periodic trends as well as atomic number and average atomic mass.

Segment C. Characteristics of Electrons

In this segment, students build models of atoms as they learn about characteristics of electrons. They also explore how quantum levels affect fireworks by performing a flame test.