

Curriculum Map: General Chem 20-21

Course: GEN CHEM Sub-topic: Uncategorized

Grade(s): 10 to 11

Course Description: General Chemistry is an introductory course to the study of chemistry. Chemistry can be defined as the study of matter and its changes. It is considered a physical science because it deals with non-living matter.

The study of science in itself is an inquiry-based activity. Science is best learned by a hands-on approach generated from one's personal questioning and observation. The heart of science is to answer two questions: Why? and How?

Course Textbooks, Workbooks, Materials Citations: Textbook – Modern Chemistry, Davis, Frey, Sarquis & Sarquis
Class notes

Unit: Foundations of Chemistry

Timeline: Week 1 to 3

Topic: What is chemistry?

Minutes for Topic: 43

Topic: What is matter?

Minutes for Topic: 43

Topic: What is a mixture and pure substance?

Minutes for Topic: 43

Topic: What are the states of matter?

Minutes for Topic: 34

Topic: What is a physical property?

Minutes for Topic: 43

Topic: What is a chemical property?

Minutes for Topic: 43

Topic: What is a physical of chemical change?

Unit: Atomic Structure

Timeline: Week 4 to 6

STANDARDS: STANDARDS

[NGSS Arranged by Topic - Science \(2013\)](#)

[HS-PS1-1 \(Advanced\)](#) 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.

[HS-PS1-3 \(Advanced\)](#) 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.

[HS-PS1-8 \(Advanced\)](#) Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.

[HS-PS2-6 \(Advanced\)](#) Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.

(* standards consolidated from Topic level)

Topic: What is an atom?

Minutes for Topic: 43

STANDARDS

NGSS Arranged by Topic - Science (2013)

- [HS-PS1-3 \(Advanced\)](#) 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.
- [HS-PS1-8 \(Advanced\)](#) Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.

Topic: What is an atom made of?

STANDARDS

NGSS Arranged by Topic - Science (2013)

- [HS-PS1-3 \(Advanced\)](#) 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.
- [HS-PS1-8 \(Advanced\)](#) Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.
- [HS-PS2-6 \(Advanced\)](#) Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.

Topic: How do we know about the nucleus?

Minutes for Topic: 43

STANDARDS

NGSS Arranged by Topic - Science (2013)

- [HS-PS1-1 \(Advanced\)](#) 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.
- [HS-PS1-3 \(Advanced\)](#) 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.
- [HS-PS1-8 \(Advanced\)](#) Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.
- [HS-PS2-6 \(Advanced\)](#) Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.

Topic: How do we know about electrons?

Minutes for Topic: 43

STANDARDS

NGSS Arranged by Topic - Science (2013)

- [HS-PS1-1 \(Advanced\)](#) 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.
- [HS-PS1-3 \(Advanced\)](#) 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.
- [HS-PS1-8 \(Advanced\)](#) Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.
- [HS-PS2-6 \(Advanced\)](#) Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.

Topic: What is an ion?

Minutes for Topic: 43

STANDARDS

NGSS Arranged by Topic - Science (2013)

- [HS-PS1-1 \(Advanced\)](#) 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.
- [HS-PS1-3 \(Advanced\)](#) 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.

- [HS-PS1-8 \(Advanced\)](#) Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.
- [HS-PS2-6 \(Advanced\)](#) Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.

Topic: What is an atomic spectrum?

Minutes for Topic: 43

STANDARDS

NGSS Arranged by Topic - Science (2013)

- [HS-PS1-1 \(Advanced\)](#) 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.
- [HS-PS1-3 \(Advanced\)](#) 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.
- [HS-PS1-8 \(Advanced\)](#) Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.
- [HS-PS2-6 \(Advanced\)](#) Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.

Topic: What is the Bohr model of the atom?

Minutes for Topic: 43

STANDARDS

NGSS Arranged by Topic - Science (2013)

- [HS-PS1-1 \(Advanced\)](#) 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.
- [HS-PS1-3 \(Advanced\)](#) 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.
- [HS-PS1-8 \(Advanced\)](#) Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.
- [HS-PS2-6 \(Advanced\)](#) Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.

Unit: Quantum Mechanical Model

Timeline: Week 7 to 9

STANDARDS: STANDARDS

NGSS Arranged by Topic - Science (2013)

- [HS-PS1-1 \(Advanced\)](#) 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.
- [HS-PS1-3 \(Advanced\)](#) 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.
- [HS-PS3-1 \(Advanced\)](#) Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.
- [HS-PS4-3 \(Advanced\)](#) Evaluate the claims, evidence, and reasoning behind the idea that electromagnetic radiation can be described either by a wave model or a particle model, and that for some situations one model is more useful than the other.

(* standards consolidated from Topic level)

Topic: What is an energy level?

Minutes for Topic: 43

STANDARDS

NGSS Arranged by Topic - Science (2013)

[HS-PS1-1 \(Advanced\)](#)

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.

[HS-PS1-3 \(Advanced\)](#)

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.

Topic: What is a sublevel?

Minutes for Topic: 43

STANDARDS

NGSS Arranged by Topic - Science (2013)

[HS-PS1-1 \(Advanced\)](#)

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.

[HS-PS1-3 \(Advanced\)](#)

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.

Topic: What is an orbital?

Minutes for Topic: 43

STANDARDS

NGSS Arranged by Topic - Science (2013)

[HS-PS1-1 \(Advanced\)](#)

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.

[HS-PS1-3 \(Advanced\)](#)

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.

Topic: What is the Aufbau principle?

Minutes for Topic: 43

STANDARDS

NGSS Arranged by Topic - Science (2013)

[HS-PS1-1 \(Advanced\)](#)

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.

[HS-PS1-3 \(Advanced\)](#)

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.

Topic: What are Hund's Rule and the Pauli Exclusion Principle?

Minutes for Topic: 43

STANDARDS

NGSS Arranged by Topic - Science (2013)

[HS-PS3-1 \(Advanced\)](#)

Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.

Topic: How do I write an electron configuration and orbital notation?

Minutes for Topic: 86

STANDARDS

NGSS Arranged by Topic - Science (2013)

[HS-PS4-3 \(Advanced\)](#)

Evaluate the claims, evidence, and reasoning behind the idea that electromagnetic radiation can be described either by a wave model or a particle model, and that for some situations one model is more useful than the other.

Unit: Periodic Table

Timeline: Week 10 to 13

STANDARDS: STANDARDS

NGSS Arranged by Topic - Science (2013)

[HS-PS1-2 \(Advanced\)](#) 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.

Topic: How was the periodic table made?

Minutes for Topic: 86

STANDARDS

NGSS Arranged by Topic - Science (2013)

[HS-PS1-2 \(Advanced\)](#) 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.

Topic: What is the periodic Law?

Minutes for Topic: 43

STANDARDS

NGSS Arranged by Topic - Science (2013)

[HS-PS1-2 \(Advanced\)](#) 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.

Topic: How does electron configuration relate to trends on the table?

Minutes for Topic: 43

STANDARDS

NGSS Arranged by Topic - Science (2013)

[HS-PS1-2 \(Advanced\)](#) 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.

Topic: What are important periodic trends

Minutes for Topic: 129

STANDARDS

NGSS Arranged by Topic - Science (2013)

[HS-PS1-2 \(Advanced\)](#) 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.

Unit: Ionic Bonding

Timeline: Week 14 to 17

STANDARDS: STANDARDS

NGSS Arranged by Topic - Science (2013)

[HS-PS1-4 \(Advanced\)](#) 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.

Topic: How do I name ionic compounds?

Minutes for Topic: 215

STANDARDS

NGSS Arranged by Topic - Science (2013)

[HS-PS1-4 \(Advanced\)](#) 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.

Topic: What is an ionic compound

Minutes for Topic: 43

STANDARDSNGSS Arranged by Topic - Science (2013)[HS-PS1-4 \(Advanced\)](#)

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.

Topic: What is a crystal structure?

Minutes for Topic: 43

STANDARDSNGSS Arranged by Topic - Science (2013)[HS-PS1-4 \(Advanced\)](#)

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.

Topic: What are the properties of ionic compounds?

Minutes for Topic: 86

STANDARDSNGSS Arranged by Topic - Science (2013)[HS-PS1-4 \(Advanced\)](#)

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.

Topic: What is a metallic bond?

Minutes for Topic: 43

STANDARDSNGSS Arranged by Topic - Science (2013)[HS-PS1-4 \(Advanced\)](#)

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.

Unit: Covalent Bonding

Timeline: Week 18 to 21

STANDARDS: STANDARDSNGSS Arranged by Topic - Science (2013)[HS-PS1-4 \(Advanced\)](#)

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.

(* standards consolidated from Topic level)

Topic: What is a covalent bond?

Minutes for Topic: 43

STANDARDSNGSS Arranged by Topic - Science (2013)[HS-PS1-4 \(Advanced\)](#)

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.

Topic: How do I draw a Lewis structure?

Minutes for Topic: 215

STANDARDSNGSS Arranged by Topic - Science (2013)[HS-PS1-4 \(Advanced\)](#)

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.

Topic: How do I name a covalent compound?

Minutes for Topic: 86

STANDARDSNGSS Arranged by Topic - Science (2013)[HS-PS1-4 \(Advanced\)](#)

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.

Topic: How do I assign formal charge?

Minutes for Topic: 43

STANDARDSNGSS Arranged by Topic - Science (2013)[HS-PS1-4 \(Advanced\)](#)

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.

Topic: Why do some atoms form 5 or 6 bonds?

Minutes for Topic: 43

STANDARDSNGSS Arranged by Topic - Science (2013)[HS-PS1-4 \(Advanced\)](#)

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.

Unit: Reactions

Timeline: Week 22 to 25

STANDARDS: STANDARDSNGSS Arranged by Topic - Science (2013)[HS-PS1-5 \(Advanced\)](#)

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.

Topic: How do I identify the type of a reaction?

Minutes for Topic: 86

STANDARDSNGSS Arranged by Topic - Science (2013)[HS-PS1-6 \(Advanced\)](#)

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

Topic: How do I balance a chemical equation?

Minutes for Topic: 86

STANDARDSNGSS Arranged by Topic - Science (2013)[HS-PS1-7 \(Advanced\)](#)

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

Topic: How do I predict the type of a reaction

Minutes for Topic: 86

STANDARDSNGSS Arranged by Topic - Science (2013)[HS-PS1-5 \(Advanced\)](#)

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.

Topic: How do I predict if a single replacement reaction will go forward or not?

Minutes for Topic: 43

STANDARDS

NGSS Arranged by Topic - Science (2013)

[HS-PS1-6 \(Advanced\)](#)

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

Unit: Math in Chemistry

Timeline: Week 26 to 27

STANDARDS: STANDARDS

NGSS Arranged by Topic - Science (2013)

[HS-PS1-7 \(Advanced\)](#)

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

Topic: What is accuracy/precision?

Minutes for Topic: 43

STANDARDS

NGSS Arranged by Topic - Science (2013)

[HS-PS1-7 \(Advanced\)](#)

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

Topic: What is a significant figure?

Minutes for Topic: 43

STANDARDS

NGSS Arranged by Topic - Science (2013)

[HS-PS1-7 \(Advanced\)](#)

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

Topic: How are significant figures used in calculations?

Minutes for Topic: 86

STANDARDS

NGSS Arranged by Topic - Science (2013)

[HS-PS1-7 \(Advanced\)](#)

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

Topic: How do I measure numbers in the lab?

Minutes for Topic: 129

STANDARDS

NGSS Arranged by Topic - Science (2013)

[HS-PS1-7 \(Advanced\)](#)

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

Unit: Mole Concept

Timeline: Week 28 to 30

STANDARDS: STANDARDS

NGSS Arranged by Topic - Science (2013)

[HS-PS1-7 \(Advanced\)](#)

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

Topic: What is a mole?

Minutes for Topic: 43

STANDARDSNGSS Arranged by Topic - Science (2013)[HS-PS1-7 \(Advanced\)](#)

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

Topic: What is a mole ratio?

Minutes for Topic: 43

STANDARDSNGSS Arranged by Topic - Science (2013)[HS-PS1-7 \(Advanced\)](#)

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

Topic: What is molar mass?

Minutes for Topic: 129

STANDARDSNGSS Arranged by Topic - Science (2013)[HS-PS1-7 \(Advanced\)](#)

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

Topic: What is the molar volume of a gas?

Minutes for Topic: 43

STANDARDSNGSS Arranged by Topic - Science (2013)[HS-PS1-7 \(Advanced\)](#)

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

Topic: What is Avagadro's number?

Minutes for Topic: 43

STANDARDSNGSS Arranged by Topic - Science (2013)[HS-PS1-7 \(Advanced\)](#)

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

Unit: Stoichiometry

Timeline: Week 31 to 33

STANDARDS: STANDARDSNGSS Arranged by Topic - Science (2013)[HS-PS1-7 \(Advanced\)](#)

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

Topic: What is stoichiometry?

Minutes for Topic: 43

STANDARDSNGSS Arranged by Topic - Science (2013)[HS-PS1-7 \(Advanced\)](#)

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

Topic: How do I predict mass of a product/reactant?

Minutes for Topic: 215

STANDARDSNGSS Arranged by Topic - Science (2013)[HS-PS1-7 \(Advanced\)](#)

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

Topic: How do I predict limiting and excess reactant?

Minutes for Topic: 215

STANDARDSNGSS Arranged by Topic - Science (2013)[HS-PS1-7 \(Advanced\)](#)

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

Unit: Gas Laws

Timeline: Week 34 to 36

STANDARDS: STANDARDSNGSS Arranged by Topic - Science (2013)[5-PS1-1 \(Advanced\)](#)

Develop a model to describe that matter is made of particles too small to be seen.

[5-PS1-2 \(Advanced\)](#)

Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.

[5-PS1-3 \(Advanced\)](#)

Make observations and measurements to identify materials based on their properties.

[5-PS1-4 \(Advanced\)](#)

Conduct an investigation to determine whether the mixing of two or more substances results in new substances.

Topic: What is a gas?

Minutes for Topic: 43

STANDARDSNGSS Arranged by Topic - Science (2013)[5-PS1-1 \(Advanced\)](#)

Develop a model to describe that matter is made of particles too small to be seen.

[5-PS1-2 \(Advanced\)](#)

Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.

[5-PS1-3 \(Advanced\)](#)

Make observations and measurements to identify materials based on their properties.

[5-PS1-4 \(Advanced\)](#)

Conduct an investigation to determine whether the mixing of two or more substances results in new substances.

Topic: What is an ideal gas?

Minutes for Topic: 43

STANDARDSNGSS Arranged by Topic - Science (2013)[5-PS1-1 \(Advanced\)](#)

Develop a model to describe that matter is made of particles too small to be seen.

[5-PS1-2 \(Advanced\)](#)

Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.

[5-PS1-3 \(Advanced\)](#)

Make observations and measurements to identify materials based on their properties.

[5-PS1-4 \(Advanced\)](#)

Conduct an investigation to determine whether the mixing of two or more substances results in new substances.

Topic: What is the combined gas law?

Minutes for Topic: 129

STANDARDSNGSS Arranged by Topic - Science (2013)

- [5-PS1-1 \(Advanced\)](#) Develop a model to describe that matter is made of particles too small to be seen.
- [5-PS1-2 \(Advanced\)](#) Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.
- [5-PS1-3 \(Advanced\)](#) Make observations and measurements to identify materials based on their properties.
- [5-PS1-4 \(Advanced\)](#) Conduct an investigation to determine whether the mixing of two or more substances results in new substances.

Topic: What is the ideal gas law?

Minutes for Topic: 86

STANDARDSNGSS Arranged by Topic - Science (2013)

- [5-PS1-1 \(Advanced\)](#) Develop a model to describe that matter is made of particles too small to be seen.
- [5-PS1-2 \(Advanced\)](#) Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.
- [5-PS1-3 \(Advanced\)](#) Make observations and measurements to identify materials based on their properties.
- [5-PS1-4 \(Advanced\)](#) Conduct an investigation to determine whether the mixing of two or more substances results in new substances.

Topic: What is Avagadro's Law?

Minutes for Topic: 43

STANDARDSNGSS Arranged by Topic - Science (2013)

- [5-PS1-1 \(Advanced\)](#) Develop a model to describe that matter is made of particles too small to be seen.
- [5-PS1-2 \(Advanced\)](#) Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.
- [5-PS1-3 \(Advanced\)](#) Make observations and measurements to identify materials based on their properties.
- [5-PS1-4 \(Advanced\)](#) Conduct an investigation to determine whether the mixing of two or more substances results in new substances.