Syllabus – High School Chemistry 1 & 2 (2025-26)

Part 1 - Instructor Contact Info

Name: Kristin Marais (B.S. Biochemistry, M.S. in Teaching, Washington State Professional Teaching Certificate with endorsements in chemistry, biology, and general science)

Email: kmarais@discovery.org

Part 2 - General Course Info

Course Description:

Discovery Institute Academy's high school chemistry course is a two-semester, virtual, lab-based standard high school chemistry course that integrates intelligent design concepts where applicable. This course will address the concepts of a traditional high school chemistry course, preparing students for a future high school AP chemistry course or college/university general chemistry course. **This course is best suited for homeschooling students as Discovery Institute Academy is not a credit-granting institution and does not offer courses for academic credit. As such, it is the parent/guardian rather than the instructor that is considered the final authority on student learning.**

Students will learn through a variety of mediums including readings, handouts, videos, virtual labs/simulations, wet labs/activities, projects, tests, quizzes, assignments, etc. First semester, students will learn about the process of science, matter and atomic structure, electronic structure, chemical bonding, chemical reactions, and classifying various types of reactions. Second semester, students will learn about stoichiometry, behavior of gases, properties of solids, liquids, and solutions, thermochemistry, kinetics, equilibrium, spontaneity, acids and bases, and nuclear chemistry. At various points, students will develop the skills of scientific inquiry through posing questions, formulating hypotheses, designing and/or conducting experiments, collecting and analyzing data, drawing conclusions, and communicating their findings. See the "Course Standards" section at the end of the syllabus for a unit-by-unit list of learning objectives.

3 different learning platforms (1st table) + 3 different tiers (2nd table—also shows platform access by tier):

DiscoveryU (DU)	Platform for reviewing content including select Discovery Institute media embedded in course.
Labster (L)	Platform for completing virtual Labster simulations.
Canvas (C)	Platform for submitting assignments, viewing scores/feedback, checking grades, emailing instructor, etc. *Tiers 2 and 3 below will complete all assessments outside of Canvas on their own.*

This course offers 3 different tiers that vary in their degree of teacher support and platform access. Choose the tier that best meets your needs.	**DU**	**L**	**C**
Tier 1—Online Course + Live Teacher: A full online course led by a qualified science teacher. Includes pre-recorded video lectures, graded assignments, virtual and hands-on labs, weekly interactive Zoom sessions **(Tues. & Thurs. @ 11:00 am – 12:00 pm PST)** with the teacher and other students, and a weekly, optional Zoom drop-in session for extra help **(Thurs. @ 1:00 pm – 2:00 pm PST).**	**YES**	**YES**	**YES**
Tier 2—Online Course + Drop-In Session: A self-directed online course to be completed at the student's own pace. Includes pre-recorded video lectures, non-graded assignments, virtual and hands-on labs, and a weekly, optional Zoom drop-in session with a teacher for questions on **Thurs. @ 2:30 - 3:30 pm PST, questions must be submitted by prior day.**	**YES**	**YES**	***NO***
Tier 3—Online Course Only: A self-directed online course to be completed at the student's own pace. Includes pre-recorded video lectures, non-graded assignments, and virtual and hands-on labs. No Zoom drop-in session.	**YES**	**YES**	***NO***

Prerequisite(s): Algebra 1

Please Note: It is strongly recommended that students have taken one year of algebra as some chemistry units will require students to set up and solve basic algebraic equations and create/interpret graphs. Students will be expected to read and explain some technical intelligent design related readings/media. Please email me regarding questions.

Suggested Grade Level for Student: 11th grade

Please Note: Grade level is not a requirement. The grade level is only suggested as most students will have completed the prior algebra 1 prerequisite by grade 11 and developed reading/writing skills. Please email me regarding questions.

Course Length:

~34 academic weeks for full-year course (~17 weeks semester 1 and ~17 weeks semester 2)

Suggested Study/Work Time:

As strictly an estimation, students can expect to spend at least 1.5 hours a day (M-F) for independent study/work. *However, please remember that this is a JUST an estimate and varies greatly from student to student and assignment to assignment.*

Chemistry is a challenging course requiring regular study and practice. Most students do not passively acquire chemistry skills (e.g., solving gas law problems, performing stoichiometry calculations, or balancing chemical equations) but rather require regular study and practice. Given this, students should typically expect daily new material to study and daily new assignments to work on.

Materials and Other Requirements:

Textbook:
Title: Pearson *Chemistry* (may also be branded Savvas *Chemistry*)
Authors: Wilbraham, Staley, Matta, & Waterman
Publishing info: Copyright © 2017, ISBN-13: 9781323205907 (if searching for the book, please search by its ISBN, not its title)
New copies can be purchased at Savvas Learning: https://www.savvas.com/Backlist-Program-List?isbn=9781323205907
Used copies can be found through Direct Textbook: https://www.directtextbook.com/isbn/9781323205907

Technical Requirements (* = items *only* for Tier 1 and Tier 2 students joining live sessions and/or drop-in sessions)
All students will need to have consistent access to the following reliable/working items:

- High-speed internet/wifi
- Modern desktop/laptop computer with up-to-date OS, web browser, and software programs
- Printer with printer paper and ink
- * Headphones with microphone
- * Webcam (to show your smiling face during live Zoom sessions – this is an expectation for all students)

Lab Materials:

Labs are voluntary (see comments further below). For those students who choose to do labs, you will need to purchase additional materials related to labs. A materials list will be provided closer to the start of the course. Chemistry students will order chemicals and equipment via a wishlist from Home Science Tools and collect remaining items from around the house and from local/online purchases (~$250 before tax and shipping and assuming most household items are already available).

Per Discovery Institute Academy, labs are voluntary:

While this course offers both virtual labs and labs (i.e., those labs and activities requiring physical materials), the virtual labs are not designed to substitute for the labs and may cover entirely different topics/concepts. Labs are optional because they (1) may require the purchase/collection of additional materials and require time that may not be readily available to the student and (2) may also pose safety concerns as students conduct labs at home that may involve handling harmful chemicals (i.e., toxic, corrosive, or flammable) or have the potential for accidents. Labs will not be weighted, but students will benefit from participating as the labs will allow them to apply the concepts they are learning.

While I will do everything I can to ensure labs are safe for students, the labs are voluntary and parents/guardians and students assume all risk if they do them. It is up to the parent/guardian whether they accept this risk/danger and whether they feel comfortable with their student conducting labs at home. Parents/guardians are not obligated to have their students conduct any of the labs in this course. For parents/guardians of Tier 1 students, at any point before or during the course, simply email me and I can place "EX" or "Excused" in the gradebook for any lab(s) you wish for your student to opt out of. I cannot advise/approve with the identification of substitute lab materials for safety reasons.

As part of the registration process, all students and their parent/guardian (whether they choose to opt in or out of labs) will be expected to review and agree to a safety guideline form. The goal? Safe students having fun!

Instructor Professional Discretion:

The instructor reserves the right to make adjustments to the course structure, content, pacing, and expectations, or materials as needed. Parents/guardians and students will be notified via email of any significant changes made after the course has started.

Part 3 – Tier 1 ONLY information

Role of Parents / Guardians:

Again, this course is best suited for homeschooling students as Discovery Institute Academy is not a credit-granting institution and does not offer courses for academic credit. As such, it is the parent/guardian rather than the instructor that is considered the final authority on student learning. Practically, this means that while the instructor is responsible for all course instruction, assessment, grading, feedback, and formulating of an overall student letter grade at the end of the course, it is the parent/guardian that is considered the final authority on their student's overall learning and can assign an overall "grade" for their student as they see appropriate. The parent/guardian can access the Canvas gradebook for their student through their Canvas parent/guardian observer account to see their student's scores and instructor feedback. Parents/guardians are welcome to use the instructor's final overall grade in that gradebook to inform their own final evaluation of their student's learning.

For more information on how the instructor will assess student learning, please see the next section.

Assessment Categories, Weights, and Purpose:

Formative Assessment – 0% weight (will include "**FA**" in the assessment name)
Practice course concepts/skills or design/conduct labs. Also check understanding of course structure and allow for reflection and course evaluation.
Summative Assessment – 70% weight (will include "**SA**" in the assessment name)
Assess overall understanding and application of unit content.
ID-Enrichment Assessments – 10% weight (will include "**IDE**" in the assessment name)
Make connections between chemistry and intelligent design concepts.
Virtual Labs – 10% weight (will include "**V-Lab**" in the assessment name)
Design/conduct virtual experiments/simulations.
Participation – 10% weight
Attendance and participation in weekly sessions.

Revision Policy:

Formative Assessments
• Most/all practice quizzes/assignments will not be collected as students will be provided answer keys to self-assess their work and then encouraged to reach out to the teacher for help if struggling. • Labs will only be assessed for general feedback and because they do not contribute to the overall score, only one attempt is permitted.

Summative Assessments

• The student will have three attempts for each summative assessment with their highest score being their final score.
• With each attempt, the student will receive feedback in the form of a score and teacher feedback.
• Students who earn 70% or higher will be prompted by teacher feedback to submit test corrections and will receive full points for each missed question if they follow the protocols below:
  ○ Identify the correct answer(s) for each missed question.
  ○ Provide an explanation for why this correct answer(s) is correct by citing information taken from class resources (handouts, videos, readings, lecture notes, etc.).
• Students who earn less than 70% will be prompted by teacher feedback to retake the test.
  ○ If a summative assessment is set to one submission, the student should email the teacher to open additional submissions.
  ○ Additional submissions beyond the first submission will require the student to review prior teacher feedback and may require the student to complete a specific study plan and/or a modified or alternative summative assessment.
• Should the student request additional submissions beyond three to achieve their desired score, the student will email the teacher to ask if an additional submission is allowed. The teacher may discuss this further with the student and if an additional submission is offered, may require the student to complete a specific study plan and/or a modified or alternative summative assessment.

ID-Enrichment Assessments
• See summative assessments.
Virtual Labs
• Virtual labs will have unlimited attempts and the highest score will be kept.

Late Work Policy:

Students will be most successful if they are working on pace within the course because they will come prepared to participate in weekly class sessions, be able to tackle new concepts/skills that build upon prior concepts/skills, and avoid the stress that comes from procrastination. Generally, and unless the instructor communicates otherwise:

Formative Assessments
• Formative assessments *will not have* an assigned due date and most/all *will not* be collected. • Given this, students can technically choose to do all or some formative assessments as they see the need for practice/learning. Within those formative assessments they choose to do, students can do all or some of the problems. Many students feel they need to do all the formative assessments to feel confident for summative assessments while other students opt out of all/most formative assessments. Ultimately, it is up to the individual student to determine how many/how much of formative assessments they need to do in order to be successful in the course.
Summative Assessments, ID-Enrichment Assessments, and Virtual Labs
• Summative assessments, ID-Enrichment assessments, and virtual labs *will have* an assigned due date. • However, this is a suggested due date to help students stay on track so students can turn in these assessments at a later date/time. The teacher will communicate via email when these items have a final, hard-and-fast deadline to be turned in.

Grading Scale:

A = 90% - 100%
B = < 90% - 80%
C = < 80% - 70%
D = < 70% - 60%
F = < 60%

Instructor Weekly Schedule:

Day	Time	Description
Mon & Wed	10:00 am – 2:00 pm PST	Class communication, grading, lesson prep
Tues & Thurs	11:00 am – 12:00 pm PST	Facilitating live Zoom class sessions
	12:00 pm – 3:00 pm PST	Class communication, grading, lesson prep **Thurs optional Zoom drop-in 1:00 pm – 2:00 pm PST*
Frid/Sat/Sun/Holidays	Not available	

Suggested Instructor Turnaround Time:

Responding to Emails	1 school day
Grading Submitted Work	3 school days **This estimated time can be lengthened for certain grading-intensive assignments/labs/projects or during busy seasons such as the semester end.*

Instructor Weekly Email:

This email will include information about course topics, assessments, deadlines, and other announcements.

Progress Reports:

The instructor will email parents / guardians and students with individual progress reports at roughly the halfway point of each semester course and at the end of each semester course with a final overall grade.

Instructor Teaching Approach:

- Be knowledgeable in their subject area and always willing to learn more.
- Be enthusiastic about what they are teaching!
- Be approachable, patient, compassionate, and encouraging with students.
- Welcome questions and new ideas!
- Facilitate critical thinking.
- View learning as a process that takes practice, invites revisions, and leads to growth. As such, provide detailed feedback to help students assess their understanding and make revisions as needed.
- Value parent / guardian input related to their specific student's growth and success.

Course Standards

1st Semester

Unit 1: Doing Science

- I can describe the scientific method and use the scientific method to analyze scientific experiments.
- I can distinguish between hypotheses, theories, and natural laws.
- I can describe the criteria of a controlled experiment and use these criteria to analyze scientific experiments.
- I can design, conduct, and analyze my own scientific experiments using the scientific method and the criteria of a controlled experiment.
- I can analyze the nature of science in terms of open-mindedness, inherent uncertainty, peer-review, and societal impact.
- I can measure using uncertainty and report measurements with appropriate units, uncertainty, significant figures, and scientific notation.
- I can convert between units of measurement using dimensional analysis. I can report measurements with appropriate units, significant figures, and scientific notation.
- I can analyze data for accuracy and precision.

ID-Enrichment Connections - Get an introduction to the scientific basis of intelligent design and contrast this with materialism.

Unit 2: Matter and the Atom

- I can identify matter as anything that has mass and volume.
- I can distinguish between physical and chemical properties.
- I can describe the evidence and inferences of early chemistry experiments and corresponding atomic theories and models that evolved over time.
- I can describe the basic components, organization, and forces within the atom.
- I can distinguish between the terms element, atom, isotope, and ion and can determine their number of subatomic particles (protons, neutrons, and electrons), atomic number, mass number, charge, and notation.
- I can determine the average atomic mass of an element given the mass and relative abundance of each of its isotopes.
- I can describe the basic organization of the periodic table in terms of periods, groups, and composition (metal, nonmetal, metalloid).
- I can construct Bohr models for main group elements in periods 1-3 and interpret Bohr models for any atom.

- I can use the octet rule to predict the number of valence electrons an atom will gain / lose to become stable, identify the corresponding ion formed, and describe the trend in valence electrons and ions as you move left to right across main group elements.
- I can describe the chemical and physical properties of specific groups / regions in the periodic table (alkali metals, alkaline earth metals, transition metals, halogens, and noble gases).

ID-Enrichment Connections – Explore how the periodic table came to be and was crafted out of a design perspective that sought to find both order and beauty in nature.

Unit 3: Electrons in Atoms

- I can create and interpret wave models which denote the rest position, peak, trough, amplitude, wavelength, and frequency of a wave and can calculate the wavelength, frequency, and velocity of a wave from those models or from descriptions.
- I can describe the relationships between velocity (c or speed of light), wavelength, frequency, and energy of light as you move across the electromagnetic spectrum.
- I can analyze the evidence for quantization of electromagnetic radiation and the dual-nature of light from Planck and Einstein's work.
- I can calculate the wavelength, frequency, and energy of a light wave.
- I can analyze and distinguish between the evidence for the Bohr model and the quantum mechanical model of the atom.
- I can describe the "address" of an electron in terms of its principal energy level, sublevel, orbital, and spin.
- I can write and interpret orbital diagrams, electron configurations, and noble gas configurations for an element.

ID-Enrichment Connections – Out of the huge range of possible wavelengths in the electromagnetic spectrum (EMS), consider how the Sun provides the right light and heat for complex life and how our atmosphere then permits this narrow band of the EMS to pass through while also blocking other harmful radiation.

Unit 4: Bonding—Forces within and between Compounds

- I can write and interpret an atom's valence electron configuration, predict the ion it will form per the octet rule, and write the electron configuration for the resulting ion.
- I can describe periodic trends and provide an underlying rationale for these trends.
- I can distinguish between various types of intramolecular forces (ionic, covalent, metallic bonds) and contrast the physical properties of metallic, ionic, and covalent compounds.
- I can model ionic compounds using Bohr models, Lewis dot diagrams, and bracket structures.
- I can model covalent compounds using Bohr models, Lewis dot diagrams, and Lewis structures.
- I can distinguish between intramolecular forces and intermolecular forces.
- I can distinguish between various types of intermolecular forces (hydrogen bonding, dipole-dipole, London dispersion).
- I can use the valence shell electron repulsion theory (VSEPR) to predict the shape of a molecule and determine its polarity and type of intermolecular force(s).
- I can describe a molecule's bonding in terms of orbital hybridization.
- I can use correct names and formulas for ionic compounds and covalent compounds.

ID-Enrichment Connections – Before considering obstacles to how the first cell may have arisen through purely blind and unguided natural processes in future units, explore what constitutes a cell and distinguish between the 4 classes of macromolecules that comprise cells. Consider the fine-tuning of nonmetal atoms (C,H,O,N) for complex life.

Unit 5: Chemical Reactions Part 1—Recognize and Model Chemical Reactions

- I can define and use the concepts of the mole and molar mass.
- I can convert between chemistry units (moles, mass, particles, volume) using dimensional analysis and report my answers with proper units, significant figures, and scientific notation.
- I can determine percent composition.
- I can distinguish between and determine empirical and molecular formulas.
- I can distinguish between pure substances (elements and compounds) and mixtures (homogeneous and heterogeneous mixtures).
- I can distinguish between and apply mixture separation techniques.
- I can distinguish between chemical changes and physical changes.
- I can represent a chemical reaction with a chemical equation, word equation, or picture.
- I can balance chemical equations.

ID-Enrichment Connections – Understand the basics of the theory of chemical evolution and begin critically analyzing early proposals for how simple molecules might have arisen through purely blind and unguided natural processes.

Unit 6: Chemical Reactions Part 2—Classify Chemical Reactions

- I can classify a chemical reaction from a chemical equation, word equation, or verbal description as synthesis, decomposition, single replacement, double replacement, or combustion.
- I can use word equations or verbal descriptions to write balanced chemical equations.
- I can use chemical equations to write word equations and verbal descriptions.
- I can predict the products for a synthesis, decomposition, single replacement, double replacement, or combustion reaction, and write a balanced chemical equation, word equation, or verbal description of that reaction.
- I can identify redox reactions and identify the oxidized species, reduced species, oxidizing agent, and reducing agent.

2nd Semester

Unit 7: Chemical Reactions Part 3—Applications and Calculations

- I can describe how to create a solution of a given molarity.
- I can describe how to create a diluted solution from a stock solution.
- I can use the coefficients in balanced chemical equations to determine the amount of reactant consumed or product produced.
- I can determine the limiting reagent of a reaction and use this to determine the amount of reactant consumed or product produced.
- I can determine the actual yield, theoretical yield, and percent yield of a chemical reaction.

ID-Enrichment Connections – Consider some of the techniques used in origin of life research and evaluate whether these experiments accurately simulate the synthesis of life's building blocks under early Earth conditions. Consider the challenges to forming biopolymers under natural conditions through purely blind and unguided natural processes.

Unit 8: Gases Up Close

- I can (1) explain how gases create pressure, (2) use a barometer and manometer to measure gas pressure and explain how each works, and (3) convert between equivalent units of pressure.
- I can (1) experimentally test relationships between pressure, volume, moles of gas, and temperature, (2) model these relationships mathematically and graphically, and (3) provide an explanation for these relationships.
- I can solve gas law problems involving pressure, volume, temperature, and moles of gas.
- I can solve gas law problems involving gas mixtures and gas movement.
- I can solve gas law problems involving stoichiometry.

Unit 9: States of Matter + Solids, Liquids, and Solutions Up Close

States of Matter & Phase Changes

- I can distinguish between solid, liquid, and gas phases.
- I can distinguish between specific phase changes.
- I can use a phase diagram.

Solids

- I can distinguish between crystalline solids and amorphous solids by their internal organization and breaking patterns.
- I can distinguish between types of crystalline solids by their composition, bonding, and physical properties.

Liquids

- I can analyze the effects of intermolecular forces on the physical properties of liquids.

Solutions

- I can describe the components of solutions and identify different types of solutions.
- I can analyze factors that affect the rate of solution formation.
- I can analyze the factors that influence solubility.
- I can determine solution concentration using molarity, mole fraction, molality, percent by mass, and percent by volume.
- I can analyze the effect of a nonvolatile solute on the colligative properties of solutions such as vapor pressure, boiling point, and freezing point.

ID-Enrichment Connections – Explore water's unique properties and study how these properties are integral to the hydrological cycle.

Unit 10: Thermochemistry

- I can explain how a system's energy changes due to the flow of energy, work done, or a combination of heat flow and work and I can record energy using appropriate units.
- I can explain that the energy of the universe remains constant during chemical and physical changes.
- I can (1) explain the concept of heat capacity, (2) analyze how the heat capacity of a substance is related to its mass and chemical composition, (3) consider the implications of differences in specific heat capacity for substances, and (4) calculate the specific heat capacity of a substance.
- I can describe how the enthalpy of a reaction can be determined with a calorimeter and perform calorimetry-related calculations.
- I can model and predict if a reaction is endothermic or exothermic using descriptions of heat flow, thermochemical equations, enthalpy of reaction values, temperature changes to the surroundings, and energy diagrams.
- I can provide an explanation for endothermic and exothermic reactions based upon the relative potential energies of reactants and products.
- I can calculate enthalpy changes using heats of reaction, phase changes, and solution formation.
- I can calculate the enthalpy of reaction using the standard heats of formation or Hess's Law.

ID-Enrichment Connections – Explore water's unique properties and study how these properties are integral to plate tectonics.

Unit 11: Reaction Rates, Equilibrium, and Spontaneity

- I can explain the requirements for a reaction to occur per the collision theory.
- I can model reactions using energy diagrams.
- I can identify the factors that increase the rate of a chemical reaction and provide an explanation for why / how these factors influence reaction rate.
- I can describe that reaction rates can be determined by the change in concentration or amount of a reactant or product over time and calculate reaction rates from graphs or data.
- I can design and conduct an experiment in which I manipulate a specific factor and measure the impact on reaction rate.
- I can analyze and write a formal report for an experiment in which I manipulate a specific factor and measure the impact on reaction rate.
- I can (1) interpret rate laws for a reaction, (2) distinguish between 1st-order reactions and higher-order reactions, and (3) determine the order of a reaction from experimental data.
- I can distinguish between reaction mechanisms that are one-step or multi-step and relate the rate-determining step in multi-step reactions to the overall reaction rate.
- I can describe the state of equilibrium.

- I can write and interpret K_{eq} expressions.
- I can use K_{eq} expressions to solve for the K_{eq} constant or equilibrium concentrations of reactants or products.
- I can apply my understanding of K_{eq} expressions to write, interpret, and solve K_{sp} expressions.
- I can predict how changes in temperature, pressure, and concentration affect the equilibrium position of a reaction using Le Châtelier's principle and provide an explanation for why / how these factors influence the equilibrium position.
- I can distinguish between spontaneous reactions and nonspontaneous reactions and analyze how the factors of enthalpy and entropy affect the spontaneity of a reaction.
- I can predict the spontaneity of a reaction using the Gibbs free energy equation.

ID-Enrichment Connections – Investigate the challenges thermodynamics poses for the origin of life through purely blind and unguided natural processes.

Unit 12: Acids and Bases

- I can describe common properties of acids and bases and be able to identify acids and bases.
- I can distinguish between Arrhenius acids/bases, Brønsted-Lowry acids/bases, and Lewis acids/bases.
- I can identify a conjugate acid-base pair.
- I can (1) analyze the self-ionization of water, (2) consider how water acts as an acid and base, and (3) connect this to the Kw of water.
- I can use the pH scale to describe how acidic, neutral, or basic a solution is.
- I can calculate pH, pOH, $[H^+]$, and $[OH^-]$ and describe a solution as acidic, neutral, or basic.
- I can distinguish between pH indicators and pH meters as two methods of measuring pH.
- I can distinguish between strong/weak acids and strong/weak bases by their degree of dissociation and corresponding K_a/K_b value.
- I can write K_a / K_b expressions for acid and base dissociation and use K_a/K_b expressions to solve for the equilibrium constant or concentrations.
- I can predict the products of an acid-base reaction and write a balanced chemical equation for this.
- I can calculate the moles of acid / base needed for neutralization using stoichiometry.
- I can summarize the steps involved in a titration and calculate the concentration of an unknown solution using a titration.
- I can analyze how the salt produced in an acid-base reaction influences the pH at the equivalence point.
- I can describe the components and function of a buffer.

Unit 13: Nuclear Chemistry

- I can summarize key observations that led to the discovery of radiation.
- I can discuss the factors that influence nuclear stability.
- I can explain that radioisotopes undergo radioactive decay to become stable isotopes and I can distinguish between different types of radiation emitted.
- I can (1) use the band of stability to predict if an isotope is stable or unstable (radioisotope), (2) predict the type of radioactive decay it might undergo, and (3) provide an explanation for this.
- I can analyze how unstable isotopes (radioisotopes) undergo radioactive decay at a rate called “half-life” and consider half-life applications.
- I can analyze the process of nuclear fission and consider its applications.
- I can analyze the process of nuclear fusion and consider its applications.
- I can consider radiation applications in my daily life.
- I can compare and contrast the three types of nuclear reactions—radioactive decay, fission, and fusion.
- I can compare and contrast nuclear reactions with chemical reactions.