Chemistry

Intelligence is the ability to adapt to change. - Stephen Hawking

Our greatest weakness lies in giving up. The most certain way to succeed is always to try just one more time. - Thomas Alva Edison

The important thing is not to stop questioning. Curiosity has its own reason for existing. -Albert Einstein

Class Location: Room 251

Instructor:	Mrs. Traudt
How to Contact:	Email: susan_traudt@chino.k12.ca.us
	Room Phone: 909-606-7540 ext 5251
Office Hours:	Monday - Friday: At lunch by appointment
	Monday - Thursday: After school 2:20 pm - 2:45 pm, drop-in
	After-hours questions: Send a message through email until 8 pm

Syllabus/Schedule Modifications: Will be announced in class and posted on Class Website.

I. COURSE DESCRIPTION

Chemistry is a Next Generation Science Standards (NGSS) based course. NGSS-based courses have shifted in focus from teacher-centered, teacher-supplied information to student-centered, student-generated conceptual understandings. As a result, students spend less time taking lecture notes and more time investigating the material. Laboratory activities feature prominently in this course and will be a mixture of traditional activities and student-generated inquiry investigations.

The course is organized into eight broad units:

1. Introduction to Chemistry
    a. Per CA Education Code, students must have the following:
        i. Signed Syllabus
        ii. Signed Safety Contract
        iii. Passing Score on the Safety Test (Passing is defined as 100%)
    b. Failure to satisfy the above requirements will prevent the student from participating in laboratory activities.
2. Elements & The Atom
3. The Atom & the Periodic Table
4. Kinetics
5. Energy and the Earth
6. Chemical Reactions
7. The Polar Nature of Water
8. Climate Change

II. COURSE AIMS AND OUTCOMES

Due to the interconnectedness and complexity of the NGSS Performance Expectations and Science and Engineering Practices, student progress toward the mastery of the standard content will be assessed, measured, and reported using teacher-created learning target statements. These statements are written in student-accessible language in "I can" statements and are clustered into strand identifiers.

1. **Introduction to Chemistry**
    a. Demonstrate the detailed understanding of safe behavior within a chemistry laboratory.
    b. Use the metric system to collect and analyze data within a chemistry laboratory.

2. **Elements & The Atom**
    a. 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.
    b. HS-PS1-8: 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.
    c. HS-ESS1-1: Develop a model based on evidence to illustrate the life span of the sun and the role of nuclear fusion in the sun's core to release energy in the form of radiation.
    d. HS-ESS1-3: Communicate scientific ideas about the way stars, over their life cycle, produce elements.
3. **The Atom & the Periodic Table**
    a. 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.
4. **Kinetics**
    a. 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.
    b. 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.
    c. HS PS1-6: Refine a design of a chemical system by specifying a change in conditions that would produce increased amounts of products at equilibrium.
5. **Energy and the Earth**
    a. 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.
    b. HS-ESS2-3: Develop a model based on evidence of Earth's interior to describe the cycling of matter by thermal convection.
    c. HS-ESS3-2: Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.
6. **Chemical Reactions**
    a. 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.
    b. HS-PS1-7: Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.
7. **The Polar Nature of Water**
    a. HS-ESS2-5: Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface properties.
    b. HS-ESS2-2: Analyze geoscience data to make the claim that change to Earth's surface can create feedbacks that cause changes to other Earth systems.
8. **Climate Change**
    a. HS-ESS2-4: Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate.
    b. HS-ESS3-5: Analyze geoscience data and the results from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth systems.

9. **Science and Engineering Practices** (Integrated through all units and assessed in the cluster of *Scientific Practices*)
    a. Developing and Using Models
    b. Obtaining, Evaluating, and Communicating Information
    c. Constructing Explanations and Designing Solutions
    d. Using Mathematics and Computational Thinking
    e. Planning and Carrying Out Investigations
    f. Engaging in Argument from Evidence
    g. Analyzing and Interpreting Data
    h. Asking Questions and Defining Problems

III. Course Requirements

Class attendance and participation policy

Student academic success is tied directly to attendance. If the student is to have the greatest opportunity to learn and be successful, excellent attendance is essential. Students are required to fully participate in all course activities. If a student is absent, the following policies apply:

- Excused absences: the student will have the number of days equal to the number of days absent to complete the work.
- Unexcused absences: the late work policy applies.
- Absence due to pre-planned school activity: the student is expected to make arrangements for the submission of work on the original due date and make advance arrangements regarding work that will be missed. If this is not accomplished, the late work policy will apply.
- Labs and Tests: must be made up on the designated days after school. In the case of extraordinary circumstances with timely teacher notification, alternative assignments will be created.

Students and parents are reminded that failure to make up a major assignment (for example a lab or test) will negatively affect the student's grade. Continued failure to make up major assignments will greatly increase the likelihood of receiving a failing grade.

Late Work Policy

Students have until one week after the summative unit test to turn in any and all assignments from the preceding unit with no standards-based penalty. The formative score of any work turned in past the original due date will be 70% of the original score.

Reassessments Policy

Students will be provided the opportunity to reassess the learning targets and demonstrate further progress toward mastery in three ways:

1. teacher-written and offered reassessments at mid and end of term as well as spiraling throughout unit assessments.
2. student-initiated reassessments throughout the term
3. student revision and resubmission of non-test assessments

To aid in communication and organization, all student work submitted past the original deadline (even absent work) must be accompanied by a completed "Late Slip" and placed with the student's name and period in the period appropriate folder. Work received without a "Late Slip" will be deemed as late work.

Grading Categories and Weights

Grades are based on the following five categories:

- Standards-Based Assessment:

- All summative assessments are scored using the Learning Targets developed from the NGSS Performance Expectations and Science and Engineering Practices.
- On a single assignment, these Learning Targets are scored using the following descriptors of student concept mastery:
  - Mastery: the student has demonstrated a high level of understanding of the defined concept as a discrete and connected component of chemistry.
  - Competency: the student has demonstrated a high level of understanding of the defined concept as a discrete component of chemistry.
  - Progressing: the student has demonstrated a moderate level of understanding of the defined concept as a discrete component of chemistry.
  - Developing: the student has attempted to demonstrate understanding of the defined concept as a discrete component of chemistry.
  - Did Not Attempt: the student did not attempt to demonstrate understanding of the defined concept as a discrete component of chemistry.
- In the AERIES gradebook, these Learning Targets are reported using a singular, composite numerical score that considers all forms of assessment of the Learning Target and gives preference to the student's most consistent and/or recent demonstration of progress.
  - **Individual Assessment:**
    - summative assessment linked to the standard competencies and assessed primarily through individual projects, quizzes, tests, and lab reflections and analysis
    - **Category Weight: 45%**
  - **Collaborative Assessment**
    - summative assessment linked to the standard competencies and assessed primarily through group projects, group lab reports, and group model development
    - **Category Weight: 30%**

- **Formative Assessments**
  - These assignments are graded on a formative basis using narrative (descriptive) grades.
  - **Standards Mastery**
    - progress reporting toward the overall mastery of the learning target clusters.
    - requirements for mastery are disclosed at the beginning of each unit of study.
    - **Category Weight: 10%**
    - Narrative Grades:
      - MASTERED: the student has met the mastery requirements for the learning target cluster.
      - NOTMAST: the student has not met the mastery requirements for the learning target cluster. The student is expected to reassess the learning targets necessary to meet the mastery requirements.
  - **Classwork/Homework**
    - **Category Weight: 5%**
    - Narrative Grades:
      - TURNEDIN: the student turned in the assignment by the late work deadline.
      - LATE: the student turned in the assignment after the late work deadline.
      - INCOMPLETE: the student turned in the assignment incomplete.
      - NOTTURNIN: the student did not turn in the assignment by the late work deadline.
      - RESUBMIT: full credit score, but this reflects that a resubmission was done.

- **NOTEBOOK**: primarily assessed through teacher observation of student work and the student's interactive notebook
  - **Category Weight: 5%**
  - Narrative Grades:
    - ALL: the student has met all or almost all (90% or greater) of the criteria set for the interactive notebook and other assignments throughout the course of a unit.
    - MOST: the student has met most (75 - 89%) of the criteria set for the interactive notebook and other assignments throughout the course of a unit.
    - SOME: the student has met some (50 - 74%) of the criteria set for the interactive notebook and other assignments throughout the course of a unit.
    - FEW: the student has met few (25 - 49%) of the criteria set for the interactive notebook and other assignments throughout the course of a unit.
    - NONE: the student has met none or almost none (less than 25%) of the criteria set for the interactive notebook and other assignments throughout the course of a unit.
    - UNABLE: unable to assess: the student did not turn in the interactive notebook or other assignments throughout the course of a unit.
- **LAB NOTEBOOK**: primarily assessed through teacher observation of student work and the student's lab notebook
  - **Category Weight: 5%**
  - Narrative Grades:
    - ALL: the student has met all or almost all (90% or greater) of the criteria set for the lab notebook and performance during lab activities throughout the course of a unit.
    - MOST: the student has met most (75 - 89%) of the criteria set for the lab notebook and performance during lab activities throughout the course of a unit.
    - SOME: the student has met some (50 - 74%) of the criteria set for the lab notebook and performance during lab activities throughout the course of a unit.
    - FEW: the student has met few (25 - 49%) of the criteria set for the lab notebook and performance during lab activities throughout the course of a unit.
    - NONE: the student has met none or almost none (less than 25%) of the criteria set for the lab notebook and performance during lab activities throughout the course of a unit.
    - UNABLE: unable to assess: the student did not turn in the lab notebook and/or participate during lab activities throughout the course of a unit.

Grading Rationale

90.0 – 100%	A
80.0 – 89.9%	B
70.0 – 79.9%	C
60.0 – 69.9%	D
<60.0%	F

IV. Classroom Expectations
Behavioral Expectations

- All student work must be in your own words.
- Must be in pencil unless otherwise stated.
- Name, date and period in the upper right hand corner.

- Be neat.
- Interactive Notebook pages must have the topic title, and the date.
- Be on-time everyday.
- Be respectful at all times.
- Use your electronic devices only when permitted.
- Water Only.
- Learn something new everyday.
- Do your best.
- Be Safe in Lab.
- Do not talk when others are talking (students or teacher are talking).
- Contribute to the best of your ability to group projects.
- Make sure that you do your own work; have academic honesty.
- Be prepared for class.
- Study for assessments.
- Do not disrupt class.

Failure to Meet Expectations:

1. Verbal Warning
2. Phone Call to Parents
3. Detention
4. Sent to Office

Electronic Device Use

Internet-capable devices (phones, iPods, tablets, etc.) are a powerful educational tool. We will be using them frequently. Students should expect to use this device on a near-daily basis.

- Students are expected to use their devices responsibly and as directed.
- Use of an electronic device when not permitted will result in the device being confiscated. In this event, the school's electronic device policy will be followed.
- Class Website will be used frequently to communicate and complete assignments.
- Students are expected to abide by the CVUSD Acceptable Use of Technology Policy

Academic Integrity

All members of the academic community have a responsibility to ensure that scholastic honesty is maintained. Honesty is the primarily the responsibility of each student. The school considers cheating to be a voluntary act for which there may be reason, but for which there is no acceptable excuse.

The term "Cheating" includes but is not limited to:

- Plagiarism
- Receiving or knowingly supplying unauthorized information
- Using unauthorized material or sources
- Changing an answer after work has been graded and presenting it as improperly graded
- Illegally accessing confidential information through a computer
- Taking an examination for another student or having another person take an examination for you
- Presenting another person's work as your own
- Forging or altering registration or grade documents
- Submitting collectively developed work as your own, unless specifically allowed by the teacher

A teacher who determines that a student has cheated may give the student a failing grade for the assignment. Students are advised that allegations of dishonesty are serious and can lead to disciplinary sanctions including suspension and expulsion.