

# Naperville North High School Principles of Chemistry Syllabus 2024/2025



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Department Chair: Jim Konrad

District Mission	To educate students to be self-directed learners, collaborative workers, complex thinkers, quality producers, and community contributors.
Department Mission	At Naperville North High School, our mission is to provide high-quality, innovative, and engaging science education that fosters deep understanding, critical thinking, and a lifelong passion for scientific inquiry. Grounded in the Next Generation Science Standards (NGSS), our curriculum and teaching approach empower students to develop the knowledge, skills, and attitudes necessary to thrive in a rapidly changing world. We are dedicated to nurturing curiosity, collaboration, and scientific literacy, preparing our students to become informed citizens who can contribute to solving local and global challenges through the application of scientific principles
Course Description	This course is a study of fundamental chemical concepts based on the Next Generation Science Standards. Students will evaluate evidence from experiments and technology used by scientists to understand the nature of the chemistry. Concepts and skills are reinforced by a strong emphasis on hands-on laboratory experiences and the integration of other branches of science. Constructivist methods of teaching are employed to ensure the best possible comprehension and retention of science concepts. CO-REQ: Algebra 1
Course Textbook & Resources	There is no assigned textbook. All resources provided through Canvas.
Course Standards & Weights	<p>The following standards guide instruction, but are not weighted in the gradebook</p> <p><b><u>HS-PS1-7</u> Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction</b></p> <p><b><u>HS-PS1-1</u> 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></p> <p><b><u>HS-PS1-2</u> 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></p> <p><b><u>HS-PS1-3</u> 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></p> <p><b><u>HS-PS2-6</u> Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.</b></p> <p><b><u>HS-PS3-1</u> 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</b></p> <p><b><u>HS-PS3-2</u> Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects).</b></p> <p><b><u>HS-PS3-4</u> Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in a more uniform energy distribution among the components in the system (second law of thermodynamics).</b></p> <p><b><u>HS-PS1-4</u> 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></p> <p><b><u>HS-PS1-8</u> 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.</b></p> <p><b><u>HS-ESS1-6</u> Apply scientific reasoning and evidence from ancient Earth materials, meteorites, and other</b></p>

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**planetary surfaces to construct an account of Earth's formation and early history.**

**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.

**HS-ESS1-3** Communicate scientific ideas about the way stars, over their life cycle, produce elements.

**HS-PS4-1** Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.

## Units of Study:

### Semester 1

- Unit 0: Matter
- Unit 1: Thermodynamics in Earth's Systems
- Unit 2: Structure & Properties of Matter
- Unit 3: Molecular Processes in Earth Systems (begin)

### Semester 2

- Unit 3: Molecular Processes in Earth Systems (end)
- Unit 4: Chemical Reactions in our world
- Unit 5: Energy from Chemical & Nuclear Reactions

## Grade Calculation Definitions

Students will be provided with multiple and varied opportunities to demonstrate mastery of learning standards. Although varied in content, all courses will include examples of practice and evidence of learning:

- **Evidence of Learning:** Tasks or assessments where feedback is provided to the student and considered evidence of a student's level of proficiency on a given standard or skill. This may include, but is not limited to formative tasks that provide insights on areas for growth as well as summative tests, projects and/or performances. In this course, specific examples include: Quizzes, Unit Transfer Tasks, Lab practicals
- **Practice:** Tasks that are connected to course standards and learning targets that promote the development of skills and/or knowledge that will be assessed, but where feedback is not provided. This may include, but is not limited to daily readings, note taking, practice exercises and tasks essential to the learning process. In this course, specific examples include: Practice worksheets, reading notes and online formative assignments.

## Grading Disbursement

Semester grades for all classes (prior to the final exam) will be calculated by a weighted average. As part of the calculation for the overall semester grade, final exams/projects will not exceed 15% of the semester grade.

A = 100-90%, B = 89-80%, C = 79-70%, D = 69-60%, F = 59-0%

Semester Grade:

- Coursework = 85% Evidence of Learning = 90% (40% Quizzes/Labs, 50% Exams), Practice= 10%
- Final Exam = 15% *Final Exam Format:* Multiple Choice

## Grading Practices

Grades communicate each student's progress toward mastery of goals/standards for the course.

- Infinite Campus Symbols/Comments:
  - A score of "Missing" (M) will indicate an assessment has not been turned in and the comments section will include a specific date by which students can still submit. After that date, a zero (0) will be recorded.
  - Any score may also have a comment indicating the due date, turned in, late, reassessment eligibility including the timeline and/or reassessment final scores.
  - A zero indicates that no attempt was made by the student. If a legitimate attempt is made on an



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assessment and practice work has been completed in a consistent and timely manner (*completing 80% of practice listed in Infinite Campus.*), a score of 50% will be the lowest possible grade.

- Late Work:
  - Evidence of Learning work submitted after the original due date cannot be penalized more than a total of 10% and can be submitted for credit up to 5 days after the original due date.
  - Practice Work is not accepted for credit after the due date.
- Other:
  - No extra credit will be issued.

D203 AI Belief Statement

At Naperville North High School, we strive to build a learner's mindset in all students, developing qualities such as adaptability, communication, critical thinking, and global citizenship. Generative Artificial Intelligence (AI), offers new opportunities to engage with important technology relevant to the future that also raises significant educational considerations. AI tools provide unique ways to engage students in the learning process, hence we encourage our staff to guide students in using AI responsibly. Teachers have the authority to establish guidelines for AI use in their classrooms, setting clear expectations for how AI can be used on learning tasks. Concurrently, we recognize that reliance on AI risks replacing genuine student engagement and original thought, undermining the attributes we aim to cultivate. Striking a balance between leveraging AI tools effectively and maintaining educational standards is crucial to the learning experience of each student.

Academic Integrity Code

District 203 students are challenged to address the academic process enthusiastically, diligently, and most importantly, honestly. It is the responsibility of our students, teachers, and administration to uphold the fundamental academic values of honesty, responsibility, fairness, respect and trust. The integrity of our district's academic programs is built upon these principles.

Academic integrity violations include cheating, plagiarism, self-plagiarism or copy infringement, obtaining or providing an unfair advantage, using a writing service and/or AI in place of original work unless specifically authorized by staff, falsification of documents, unauthorized access to records, and inappropriate collaboration, whether intentional or unintentional. The classroom teacher and administration will collaborate and exercise professional judgment in determining academic integrity violations.

Reassessment Policy

The purpose of reassessment is to allow students to demonstrate mastery of course standards in which they remain deficient. Higher reassessment grades will replace the original assessment score, but will not exceed 85%.

- Practice work is not eligible for reassessment.
- Evidence of Learning work may be eligible for reassessment. Refer to the chart below for eligibility:

<input type="checkbox"/> The assessment included multiple opportunities for feedback and improvement in the process for the final product OR formative assessments are aligned to standards, allow students to practice in the same assessment format, and gain feedback for improvement before the summative assessment.	<input type="checkbox"/> There was timely and consistent completion of practice work and formative assessments. <b>A student needs to have 80% grade in the practice/homework category to be eligible for a retake</b> <input type="checkbox"/> A one-time performance on an assessment does not reflect the student's level of proficiency leading up to the assessment.
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	<input type="checkbox"/> Summative assessment score is below 85%.
Not eligible for reassessment	Eligible for reassessment if all three statements above are true.

Reassessment Parameters:

- The reassessment opportunity will require designated learning experiences that demonstrate readiness as assigned by the teacher.
  - Reassessments MUST be completed within 5 school days of the student receiving feedback unless otherwise determined by the instructor. The reassessment deadline should be communicated in an IC comment.
  - The final reassessment score will be capped at 85%.
- You are encouraged to communicate with their teacher regarding questions.
  - Teachers make every effort to respond to emails and phone calls within 24 hours during the workweek.
  - The best way to communicate with teachers is through email; however, if you haven't received a response within 48 hours, please resend the email or call their voicemail. Your email may have been filtered.
- You can make an appointment with your teacher should you need additional instruction or support in learning material.
  - You can attend peer tutoring in the Lit Center during lunch periods to receive extra support or to work on assignments.
  - You can drop in to work with a peer tutor during lunch periods or before school in the Literacy Center.

Student Communication

Additional Resources for Support

Parents or Guardians Partnership

Naperville North believes in a collective partnership with parents/guardians which provides students the best opportunities for success.

Some ways parents/guardians can support their student's learning are:

- Actively check Infinite Campus for their student's grades.
  - Infinite Campus is a tool to progress monitor student work until the final course grade is posted.
  - Monthly progress grades are posted and represent the current grade of a student in the course at that moment in time.
- Discuss missing assignments, reiterate due dates, help organize folders, materials, assignment notebooks, and review upcoming projects and assessments.