Omaha North Magnet High School
Chemistry 1 & 2
Course Syllabus

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Course Description
This course engages students in both theoretical and practical problem-solving strategies as they investigate chemical issues that are relevant to their daily lives. Topics of study include laboratory processes, chemical safety, atomic structure, properties of matter, and chemical reactions.

Instructional Philosophy With the successful completion of a science course, students should be expected to look at the world around them making logical connections to science concepts. Differentiation and inquiry are strong components used to engage the student in learning scientific concepts. Each student deserves to learn, and an effort should be made to connect with each student to drive that learning. The use of kinesthetic, visual, and auditory based lessons encourages students to be successful, using their personal learning style. Engaging the students in activities and labs will build inquiry skills needed to be taken out into the student’s daily environment. Questioning possibilities, problem solving, and critical thinking skills can increase with the use of inquiry and builds well rounded citizens.

Content and Inquiry Standards
C.1.a-f Students will investigate and describe matter in terms of its structure (atomic and molecular), composition, conservation and energy
C.2.a-i Students will investigate bonding
C.3.a-e Students will investigate chemical composition
C.4.a-i Students will investigate chemical reactions and describe chemical equations
C.5.a-e Students will investigate stoichiometric relationships
C.6.a-e Students will investigate solution chemistry
C.7.a-e Students will investigate the gas laws and corresponding relationships
SC12.1.1.a-l Students will design and conduct investigations that lead to the use of logic and evidence in the formulation of scientific explanations and models.
SC12.1.2.a-d Students will apply the nature of scientific knowledge to their own investigations and in the evaluation of scientific explanations.
SC12.1.3.a-h Students will solve a complex design problem.

Literacy Standards
RST.9-10.1 Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions. (SC12.1.1.c, SC12.1.1.f, SC12.1.1.g, SC12.1.1.k, SC12.1.2.b)
RST.9-10.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9-10 texts and topics (SC12.1.1.c, SC12.1.1.f)
RST.9-10.6 Analyze the author’s purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, defining the question the author seeks to address. (SC12.1.1.f, SC12.1.1.g, SC12.1.1.k, SC12.1.2.b)
RST.9-10.8 Assess the extent to which the reasoning and evidence in a text support the author’s claim or a recommendation for solving a scientific or technical problem. (SC12.1.1.a, SC12.1.1.g, SC12.1.1.h, SC12.1.1.i, SC12.1.1.j, SC12.1.1.k, SC12.1.2.a, SC12.1.2.b)
RST.9-10.9 Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts. (SC12.1.1.i, SC12.1.1.j)
WHST.9-10.1.a Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence. (SC12.1.1.h, SC12.1.1.i, SC12.1.1.j, SC12.1.1.k)

WHST.9-10.1.b Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience’s knowledge level and concerns. (SC12.1.1.h, SC12.1.1.i, SC12.1.1.j, SC12.1.1.k)

WHST.9-10.1.c Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. (SC12.1.1.h, SC12.1.1.i, SC12.1.1.j, SC12.1.1.k)

WHST.9-10.1.d Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. (SC12.1.1.h, SC12.1.1.i, SC12.1.1.j, SC12.1.1.k, SC12.1.2.b)

WHST.9-10.1.e Provide a concluding statement or section that follows from or supports the argument presented. (SC12.1.1.h, SC12.1.1.i, SC12.1.1.j, SC12.1.1.k)

WHST.9-10.2.d Use precise language and domain-specific vocabulary to manage the complexity of the topic and convey a style appropriate to the discipline and context as well as to the expertise of likely readers. (SC12.1.1.f)

WHST.9-10.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (SC12.1.1.h, SC12.1.1.j)

WHST.9-10.6 Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology’s capacity to link to other information and to display information flexibly and dynamically. (SC12.1.1.j)

WHST.9-10.7 Conduct short as well as more sustained research projects to answer a questions (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation. (SC12.1.1.b)

WHST.9-10.9 Draw evidence from informational texts to support analysis, reflection, and research. (SC12.1.1.g, SC12.1.1.h, SC12.1.1.k, SC12.1.2.c)

SL.9-10.1.a Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas. (SC12.1.1.k)

SL.9-10.1.c Propel conversations by posing and responding to questions that relate the current discussion to broader themes or larger ideas; actively incorporate others into the discussion; and clarify, verify, or challenge ideas and conclusions. (SC12.1.1.k)

SL.9-10.1.d Respond thoughtfully to diverse perspectives, summarize points of agreement and disagreement, and, when warranted, qualify or justify their own views and understanding and make new connections in light of the evidence and reasoning presented. (SC12.1.2.a)

SL.9-10.1.d Respond thoughtfully to diverse perspectives, summarize points of agreement and disagreement, and, when warranted, qualify or justify their own views and understanding and make new connections in light of the evidence and reasoning presented. (SC12.1.1.k)

SL9-10.3 Evaluate a speaker’s point of view, reasoning, and use of evidence and rhetoric, identifying any fallacious reasoning or exaggerated or distorted evidence. (SC12.1.1.k, SC12.1.2.a)

SL.9-10.4 Present information, findings and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance and style are appropriate to purpose, audience, and task. (SC12.1.1.j)

Major Units of Study

Semester 1

- 4 weeks on Atomic Structure
  - Atomic structure models
  - Subatomic particles
  - Phase change
- 4 weeks on Periodic Table
  - Arrangement of characteristics
  - Periodic trends

Revised 8/5/2016
• 4 weeks on Bonding and Nomenclature  
  o Naming conventions  
  o Types of bonding  
  o Bond characteristics  
• 4 weeks on Chemical Composition  
  o Moles  
  o Percent composition  
  o Dimensional analysis  
• 2 weeks Chemical Reactions  
  o Law of Conservation  

Semester 2  
• 5 weeks on Chemical Reactions  
  o Reaction types  
  o Reaction rates  
  o Equilibrium  
• 4 weeks on Stoichiometry  
  o Dimensional analysis  
  o Limiting and excess reactants  
• 4 weeks on Solutions  
  o Solvent and solutes  
  o Concentrations  
  o Acids and bases  
• 5 weeks on Gas Laws  
  o Relationships between pressure, volume, moles, and temperature

Course Expectations
• Complete coursework, both in and out of class, in a timely fashion.  
• Participate during in-class discussion and cooperative learning opportunities.  
• Complete formal lab write-ups.  
• Create technology based projects and presentations.

Class Rules and Expectations  
**Be Safe, Be Respectful, Be Responsible**  
• Rules and guidelines set forth in the student handbook will be followed in this class. Any student who distracts other students or the instructor interferes with the learning environment and should expect consequences.  
• Attendance: Being in class, on time, is important for student success. Anyone entering the classroom after the bell has stopped ringing is tardy. Per school policy...  
• Electronic Devices: No electronic devices (cell phones, mp3 players, games, etc.) are permitted to be seen, heard, or used in the classroom at any time, per school policy...

Safety Expectations  
Biology is a lab-based course with safety as an essential component. The safety guidelines support and encourage an investigative approach and laboratory instruction, while at the same time assisting in the development of a safe learning environment. Students will follow the Omaha Public Schools district guidelines on safety that is published in the science safety contract. Students will be provided a copy of the guidelines. The students, parents and/or guardians are expected to read the guidelines and sign and return the signature portion of the contract. The student will not be allowed to participate in the lab activities until the signed contract is returned.

Texts  
• Chemistry (Pearson 2012)  
• Chemistry: Matter and Change (Glencoe 2013) - Honors

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Assessment (customized according to subject area – examples below)

- Course grades will be determined by planned assessments such as tests, quizzes, and projects scored with rubrics.
- Major tests and/or writing projects are to be expected at the end of each major unit outlined above.
- State Testing: To address state requirements, all 11th grade students will complete a required test – ACT.
- District Testing: The NWEA/MAP test will be administered as a predictive test. The NWEA/MAP test will be administered in high school only to 9th grade students.

OPS Secondary Grading Practices

All coursework and assessments are judged based on the level of student learning from “below basic” to “advanced.” This course will provide multiple opportunities to achieve at the “proficient” to “advanced” levels. Students are evaluated based on a proficiency scale or project rubric. Proficiency scales for this course are available upon request (teacher will identify location such as portal, teacher website, attached, etc.)

Weighting Assignments (Using a Multiplier)

When entering grades in the grade book, teachers may assign greater weight to some assignments than others. For example, the final exam may impact a student’s summative grade more than a unit test. Teachers will have the option to use the multiplier to weigh both formative and summative assessments to a maximum of 4. If a weight of 2 or more is applied to an assessment, this information will be communicated to students at the time the assessment is announced.

There are three types of coursework

- **Practice** – assignments are brief and done at the beginning of learning to gain initial content (e.g., student responses on white boards, a valid sampling of math problems, keyboarding exercises, and diagramming sentences, checking and recording resting heart rate). Practice assignments are not generally graded for accuracy (descriptive feedback will be provided in class) and are not a part of the grade. Teachers may keep track of practice work to check for completion and students could also track their practice work. Practice work is at the student’s instructional level and may only include Basic (2) level questions.

- **Formative (35% of the final grade)** – assessments/assignments occur during learning to inform and improve instruction. They are minor assignments (e.g., a three paragraph essay, written responses to guiding questions over an assigned reading, completion of a comparison contrast matrix). Formative assignments are graded for accuracy and descriptive feedback is provided. Formative work may be at the student’s instructional level or at the level of the content standard. Formative assessments/assignments will have all levels of learning – Basic (2), Proficient (3), and Advanced (4), which means that for every formative assessment/assignment, students will be able to earn an Advanced (4). Teachers will require students to redo work that is not of high quality to ensure rigor and high expectations. The students’ score on a formative assessment that was redone will be their final score. It is recommended to have three to five formative assessments for every one summative assessment.

- **Summative (65% of the final grade)** – assessments/assignments are major end of learning unit tests or projects used to determine mastery of content or skill (e.g., a research paper, an oral report with a power point, major unit test, and science fair project). Summative assignments are graded for accuracy. Summative assignments assess the student’s progress on grade level standards and may not be written at the student’s instructional level. Summative assessments/assignments will have all levels of learning – Basic (2), Proficient (3), and Advanced (4), which means that for every formative assessment/assignment students will be able to earn an advanced (4).

To maintain alignment of coursework to content standards, which is a key best practice for standards-based grading, teachers will utilize a standardized naming convention for each of the standards within a course. The content standard will be marked on each assignment entered into Infinite Campus (District Grading Program) using all capital letters followed by a colon. After the colon will be the title of the coursework.

At the end of the grading period, scores are converted to a letter grade using this grading scale.
A = 3.26 – 4.00
B = 2.51 – 3.25
C = 1.76 – 2.50
D = 1.01 - 1.75
F = 0.00 – 1.00

Redoing/Revising Student Coursework

1. Students are responsible for completing all coursework and assessments as assigned.
2. Students may be allowed redos and revisions of coursework for full credit during that unit of study based upon the teacher’s professional judgment and evidence collected throughout the unit. Scores for student work after retaking, revising or redoing will not be averaged with the first attempt at coursework or assessment but will replace the original student score.
3. Students are expected to complete assessments when given to the class, or if a student was justifiably absent, at a time designated by the teacher.
4. Redoing, retaking or revising will be done at teacher discretion in consultation with the student and parent(s). Teachers may schedule students before, during, or after school to address needed areas of improvement if not convenient during class. The time and location for redoing, retaking or revising will be done at the teacher’s discretion in consultation with the student and parent(s).

Late Coursework
Students are expected to complete coursework on time. Late coursework may be accepted for full credit until the end of the unit based on the teacher’s professional judgment and evidence collected throughout the unit. Accepted late work will not result in a reduction in grade and the M (Missing) will be replaced with the score earned by the student. The teacher or school may make exceptions depending upon student circumstances (such as prolonged absences due to illness).

Missing Coursework
Work not turned in at all will be recorded in Infinite Campus (district grade book) as an M for missing, which calculates to a score of zero.

Independent Practice
The role of independent practice is to develop knowledge and skills effectively and efficiently during the unit of study. Independent practice helps guide the learning process by providing accurate, timely and helpful feedback to students without penalty.