PRE-AP (HONORS) CHEMISTRY

Teacher Name: Mary-Katherine Maguire **Teacher E-mail**: memaguire@madisoncity.k12.al.us
Instagram: @omgchemistry **Reminders:** Sent via email before major assignments

Course Description:

This is an accelerated course designed to prepare students for Advanced Placement Chemistry. This introductory course gives a general overview of the study of molecules and their interactions. Chemistry is a difficult course in that most of it is problem solving and there is a moderate amount of memorization necessary to master the "language" of chemistry. We will cover the essential topics to give you a firm foundation for classes you may take later and for the chemistry you experience in everyday life. The course will attempt to give you a deeper understanding of the science processes that go on around you**. This class will use a concept called the flipped classroom**. The student is responsible for watching videos at home via links on Schoology and taking notes and formulating questions.

Materials:

1. Binder
2. Scientific Calculator
3. Pens (blue or black) and Pencils

Course Objectives:

1. Obtain and communicate information from historical experiments.
2. Develop and use models of atomic nuclei to explain why the abundance-weighted average of isotopes of an element yields the published atomic mass.
3. Use the periodic table as a systematic representation to predict properties of elements based on their valence electron arrangement.
   a) Analyze data such as physical properties to explain periodic trends of the elements, including metal/nonmetal/metalloid behavior, electrical/heat conductivity, electronegativity and electron affinity, ionization energy, and atomic-covalent/ionic radii, and how they relate to position in the periodic table.
   b) Develop and use models (e.g., Lewis dot, 3-D ball-and-stick, space-filling, valence-shell electron-pair repulsion [VSEPR]) to predict the type of bonding and shape of simple compounds.
   c) Use the periodic table as a model to derive formulas and names of ionic and covalent compounds.
4. Plan and conduct an investigation to classify properties of matter as intensive (e.g., density, viscosity, specific heat, melting point, boiling point) or extensive (e.g., mass, volume, heat) and demonstrate how intensive properties can be used to identify a compound.
5. Plan and conduct investigations to demonstrate different types of simple chemical reactions based on valence electron arrangements of the reactants and determine the quantity of products and reactants.
   a) Use mathematics and computational thinking to represent the ratio of reactants and products in terms of masses, molecules, and moles.
   b) Use mathematics and computational thinking to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.
6. Use mathematics and computational thinking to express the concentrations of solutions quantitatively using molarity.
   a) Develop and use models to explain how solutes are dissolved in solvents.
   b) Analyze and interpret data to explain effects of temperature on the solubility of solid, liquid, and gaseous solutes in a solvent and the effects of pressure on the

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solubility of gaseous solutes.

c) Design and conduct experiments to test the conductivity of common ionic and covalent substances in a solution.
d) Use the concept of pH as a model to predict the relative properties of strong, weak, concentrated, and dilute acids and bases (e.g., Arrhenius and Brønsted-Lowry acids and bases).

7. Plan and carry out investigations to explain the behavior of ideal gases in terms of pressure, volume, temperature, and number of particles.
   a) Use mathematics to describe the relationships among pressure, temperature, and volume of an enclosed gas when only the amount of gas is constant.
   b) Use mathematical and computational thinking based on the ideal gas law to determine molar quantities.
8. Refine the design of a given chemical system to illustrate how LeChâtelier's principle affects a dynamic chemical equilibrium when subjected to an outside stress (e.g., heating and cooling a saturated sugar- water solution).
9. Analyze and interpret data (e.g., melting point, boiling point, solubility, phase-change diagrams) to compare the strength of intermolecular forces and how these forces affect physical properties and changes.
10. Plan and conduct experiments that demonstrate how changes in a system (e.g., phase changes, pressure of a gas) validate the kinetic molecular theory.
    a) Develop a model to explain the relationship between the average kinetic energy of the particles in a substance and the temperature of the substance (e.g., no kinetic energy equaling absolute zero [0K or -273.15°C]).
11. Construct an explanation that describes how the release or absorption of energy from a system depends upon changes in the components of the system.
    a. Develop a model to illustrate how the changes in total bond energy determine whether a chemical reaction is endothermic or exothermic.
    b. Plan and conduct an investigation that demonstrates the transfer of thermal energy in a closed system (e.g., using heat capacities of two components of differing temperatures).
12. Use organic nomenclature to deconstruct molecules.
13. Use analytical qualitative and quantitative techniques to gather data, build claims and reasoning about chemical systems.

Classroom Expectations:

You are expected to conduct yourself in a respectful and productive manner. In addition to all the rules and expectations listed in the student handbook, I expect you to have a positive attitude, treat others with respect, practice self-discipline, and demonstrate responsibility. If these conditions are not met, you can expect one-on-one meetings with me, parent/instructor conferencing, and administrative action, if necessary.

Classroom Management Plan

- Verbal reprimand
- Conference with student with parent contact
- Withdrawal of privilege(s) with parent contact
- Other consequences determined to be reasonable and appropriate by the school.

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Tardy Policy:

Students late to ANY class, without a pass, will report to a tardy scanning station. You will input your identification number on the pin pad. A tardy slip will be printed for you to report to class. Parent email will be sent for every tardy. Discipline will be as follows: 3 total tardies will result in 1 day of ISS; 6 total tardies will result in 2 days of ISS;
Progressive discipline to follow.

Cell Phone Expectations:

ALL electronic devices are prohibited to be used during the instructional day. This is from 8:12-3:28. This includes: cell phones, smart watches, earbuds/headphones/airpods, tablets, and personal computers (school issued laptops will be allowed). Discipline will be given to ANY student who uses an electronic device. If you bring your device to school, it MUST be placed in your bookbag. It cannot be on your person

Grading Policy:

Grades are based on a 100 point scale. We have two types of grades: daily grades (30% of final grade) and tests (70% of final grade). The percentage based grading scale is as follows: A (90-100), B (80-89), C (70-79), D (65-69), and F (below 65). Grades will be a reflection of mastery of the standards. Make sure all absences are excused as class work can be made up and graded for excused absences only.

Cheating/plagiarizing will be handled by the teacher at teacher discretion. Major assessments will count 70 percent of your grade. Homework and classwork will account for 30 percent of your grade. Grades will be updated weekly in PowerSchools. Each grading period will consist of nine weeks.

Make-up Work Policy:

Make-up tests will **only** be given to a student who has an **excused absence**. **The student must make arrangements with the teacher to take a make-up test before or after school.** A student only has two chances to make up a test.

Homework/Classwork: Students who are absent for **excused reasons** will be permitted to make up missed work. **It is the student's responsibility to get their work assignments the day upon return to school and complete the assignments according to a time frame determined by the teacher within two weeks of the date of the last absence**. Grades of zero will be assigned for assignments missed because of unexcused absences.

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Exam Exemption Policy

Any student in grades 9-12 are eligible to earn an exam exemption for the 2025-2026 Exams for each class IF they have earned an 85% or higher as the final grade for that course. Any of the following will EXCLUDE a student from exempting for that class:

- **More than five EXCUSED absences**
- **Any UNEXCUSED absence**
- **In School Suspension (ISS) for 3 days or more**
- **Out of School Suspension (OSS)**
- **One or more days of Alternative School placement**
- **Not participating in the state standardized assessment for their grade level (10th PreACT, 11th ACT with Writing, 12th WorkKeys, and AP exams)**

Attendance and full participation in reviews and assignments for the class leading up to the day of the final exam are required.

Text and Other Required Reading:

Text: Introductory Chemistry: A Foundation 8th Edition, Zumdahl and DeCoste, Cengage Publishing 2015. Actually getting new editions this year! (2025)

The class will utilize a "flipped" model whereby students watch recorded lectures on EdPuzzle and take notes at home and do "homework" i.e practice problems at school. This allows the students to practice the skills from the lecture and ask questions after they've had time to think about the material. EdPuzzle assignments are considered daily grades. If access to the internet at home is a concern please discuss this with the teacher. The videos can be made available in different formats. Students, teachers, and parents can work together to find the answer to any problem.

Tutoring Schedule:

Tuesdays and Thursdays

- Before School- Student must ask Mrs. Maguire for a hall pass ahead of time
  - 7:30-8:00 am
- After School- No Pass Required
  - 3:30-4:00 pm

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18 – WEEK PLAN	
Week 1	Safety, Classification and Investigation of Matter
Week 2	Units of Measure, Accuracy, Precision and Dimensional Analysis
Week 3	Atomic Structure/Periodic Table/Electron Configurations/How elements are formed
Week 4	Chemical Formulas and Compounds
Week 5	Chemical Formulas and Compounds
Week 6	Chemical Reactions and Equations
Week 7	Chemical Reactions and Equations
Week 8	Chemical Measurements (Mole Concept)
Week 9	Stoichiometry
Week 10	Stoichiometry
Week 11	Analytical Chemical Techniques and Materials Science
Week 12	Solids and Liquids
Week 13	Gases
Week 14	Solutions
Week 15	Solutions
Week 16	Acids and Bases
Week 17	Thermodynamics/Rates of Reaction
Week 18	Equilibria

***This is a tentative plan and may change at the discretion of the teacher.**

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Please sign below to acknowledge that you have received, read, and understood the syllabus.

Student name: _____

Student signature: _____

Parent/guardian name: _____

Parent/guardian signature: _____

Parent/guardian, please provide two ways for me to contact you (email address, phone numbers):

Parent/guardian Email:

_____

Parent/Guardian Phone number:

_____