



COURSE SYLLABUS Honors Chemistry 2019-2020

Teacher: Shaka B. Gore

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Room Number: 1413

Tutorial: Thursdays, 3:45-4:45 pm

Textbook: Prentice Hall, *Chemistry* \$70

Useful Websites:

USA Testprep.com

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Khanacademy.org

COURSE DESCRIPTION

The Chemistry curriculum is designed to continue student investigations of the physical sciences that began in grades K-8 and provide students the necessary skills to be proficient in chemistry. This curriculum includes more abstract concepts such as the structure of atoms, structure and properties of matter, and the conservation and interaction of energy and matter. Students investigate chemistry concepts through experience in laboratories and field work using the processes of inquiry.

Major Concepts/ Skills and Concepts/Skills to Maintain: Classifications of Matter Characteristics of Science Atomic Theory/Configuration Records investigations clearly and accurately Periodicity Uses scientific tools Bonding/Nomenclature Interprets graphs, tables, and charts Chemical Reactions Writes clearly Law of Conservation of Matter Uses proper units Empirical/Molecular Formulas Organizes data into graphs, tables, and charts Stoichiometry Uses models Kinetic Molecular Theory/Phase Changes Asks quality questions Gas Laws Uses technology Solutions/Concentrations Uses safety techniques Acid/Base Chemistry Analyzes scientific data via calculations and inferences Recognizes the importance of explaining data with precision and accuracy.

SC1. Obtain, evaluate, and communicate information about the use of the modern atomic theory and periodic law to explain the characteristics of atoms and elements. a. Evaluate merits and limitations of different models of the atom in relation to relative size, charge, and position of protons, neutrons, and electrons in the atom. b. Construct an argument to support the claim that the proton (and not the neutron or electron) defines the element's identity. c. Construct an explanation based on scientific evidence of the production of elements heavier than hydrogen by nuclear fusion. d. Construct an explanation that relates the relative abundance of isotopes of a particular element to the atomic mass of the element. e. Construct an explanation of light emission and the movement of electrons to identify elements. f. 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 (i.e. including atomic radii, ionization energy, and electronegativity). g. Develop and use models, including electron configuration of atoms and ions, to predict an element's chemical properties.

SC2. Obtain, evaluate, and communicate information about the chemical and physical properties of matter resulting from the ability of atoms to form bonds. a. Plan and carry out an investigation to gather evidence to compare the physical and chemical properties at the macroscopic scale to infer the strength of intermolecular and intramolecular forces. b. Construct an argument by applying principles of inter- and intra- molecular forces to identify substances based on chemical and physical properties. c.



Construct an explanation about the importance of molecular-level structure in the functioning of designed materials. (Clarification statement: Examples could include why electrically conductive materials are often made of metal, flexible but durable materials are made up of long chained molecules, and pharmaceuticals are designed to interact with specific receptors.) d. Develop and use models to evaluate bonding configurations from nonpolar covalent to ionic bonding. (Clarification statement: VSEPR theory is not addressed in this element.) e. Ask questions about chemical names to identify patterns in IUPAC nomenclature in order to predict chemical names for ionic (binary and ternary), acidic, and inorganic covalent compounds. f. Develop and use bonding models to predict chemical formulas including ionic (binary and ternary), acidic, and inorganic covalent compounds. g. Develop a model to illustrate the release or absorption of energy (endothermic or exothermic) from a chemical reaction system depends upon the changes in total bond energy.

SC3. Obtain, evaluate, and communicate information about how the Law of Conservation of Matter is used to determine chemical composition in compounds and chemical reactions. a. Use mathematics and computational thinking to balance chemical reactions (i.e., synthesis, decomposition, single replacement, double replacement, and combustion) and construct 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. Plan and carry out an investigation to determine that a new chemical has been formed by identifying indicators of a chemical reaction (e.g., precipitate formation, gas evolution, color change, water production, and changes in energy to the system). c. Use mathematics and computational thinking to apply concepts of the mole and Avogadro's number to conceptualize and calculate • percent composition • empirical/molecular formulas • mass, moles, and molecules relationships • molar volumes of gases d. Use mathematics and computational thinking to identify and solve different types of reaction stoichiometry problems (i.e., mass to moles, mass to mass, moles to moles, and percent yield) using significant figures. (Clarification statement: For elements c and d emphasis is on use of mole ratios to compare quantities of reactants or products and on assessing students' use of mathematical thinking and not on memorization and rote application of problem-solving techniques.) e. Plan and carry out an investigation to demonstrate the conceptual principle of limiting reactants.

SC4. Obtain, evaluate, and communicate information about how to refine the design of a chemical system by applying engineering principles to manipulate the factors that affect a chemical reaction. a. Plan and carry out an investigation to provide evidence of the effects of changing concentration, temperature, and pressure on chemical reactions. (Clarification statement: Pressure should not be tested experimentally.) b. Construct an argument using collision theory and transition state theory to explain the role of activation energy in chemical reactions. (Clarification statement: Reaction coordinate diagrams could be used to visualize graphically changes in energy (direction flow and quantity) during the progress of a chemical reaction.) c. Construct an explanation of the effects of a catalyst on chemical reactions and apply it to everyday examples. d. Refine the design of a chemical system by altering the conditions that would change forward and reverse reaction rates and the amount of products at equilibrium. (Clarification statement: Emphasis is on the application of LeChatelier's principle.)

SC5. Obtain, evaluate, and communicate information about the Kinetic Molecular Theory to model atomic and molecular motion in chemical and physical processes. a. Plan and carry out an investigation to calculate the amount of heat absorbed or released by chemical or physical processes. (Clarification statement: Calculation of the enthalpy, heat change, and Hess's Law are addressed in this element.) b. Construct an explanation using a heating curve as evidence of the effects of energy and intermolecular forces on phase changes. c. Develop and use models to quantitatively, conceptually, and graphically represent the relationships between pressure, volume, temperature, and number of moles of a gas.

SC6. Obtain, evaluate, and communicate information about the properties that describe solutions and the nature of acids and bases. a. Develop a model to illustrate the process of dissolving in terms of solvation versus dissociation. b. Plan and carry out an investigation to evaluate the factors that affect the rate at



which a solute dissolves in a specific solvent. c. Use mathematics and computational thinking to evaluate commercial products in terms of their concentrations (i.e., molarity and percent by mass). d. Communicate scientific and technical information on how to prepare and properly label solutions of specified molar concentration. e. Develop and use a model to explain the effects of a solute on boiling point and freezing point. f. Use mathematics and computational thinking to compare, contrast, and evaluate the nature of acids and bases in terms of percent dissociation, hydronium ion concentration, and pH. (Clarification statement: Understanding of the mathematical relationship between negative logarithm of the hydrogen concentration and pH is not expected in this element. Only a conceptual understanding of pH as related to acid/basic conditions is needed.) g. Ask questions to evaluate merits and limitations of the Arrhenius and Bronsted-Lowry models of acid and bases. h. Plan and carry out an investigation to explore acid-base neutralization.

INSTRUCTIONAL RESOURCES:

The textbook being used for this class is *Chemistry*. Prentice Hall Science. 2008. Once textbooks are issued, they become the responsibility of the student. Issued textbooks should be returned at the end of the school year or upon withdrawal from the course. If the book is damaged or not returned, the replacement cost of the textbook is \$70.

Course Outline: Course Outline is based on the Georgia Standards of Excellence for Subject and Grade.

First Semester Outline
Unit 1: <i>SC1 a-g Atomic Structure and Periodic Table</i>
Unit 2: <i>SC2 a-f Bonding and Intermolecular Forces</i>
Unit 3: <i>SC3 a-c Law of Conservation of Matter</i>
Second Semester Semester Outline
Unit 3: (continued) <i>SC3 c-e Law of Conservation of Matter</i>
Unit 4: <i>SC4 a-d Rates of Reactions Chemical Kinetic & Chemical Equilibrium</i>
Unit 5: <i>SC5 a- g Thermochemistry & KMT & Gases</i>
Unit 6: <i>SC6 a-h Solutions & Acids and Bases</i>

Special Projects and Assignments:

Student Learning Objective Assessment: This standardized test will be given in the spring of this school year from. Keep in mind students will be tested in all academic areas this year.

Laboratory Activities: Because this is a lab course, each student must participate in the lab experience and report the completed lab on his/her own report.

Projects: All students will be participating in the science fair, there will also be projects given throughout the school year.



GRADING POLICY:

The school-wide assignment tasks and assigned weights include the following: Homework (10%), Classwork/Participation (35%), Quizzes (15%), Projects (20%), Exams (20%). For Georgia Milestones courses, these weights will be slightly adjusted at the beginning of the 2nd semester to reflect that the Milestone Test is 20% of the student's grade.

Area	Percentage
Classwork, Participation	20%
Projects/Labs	20%
Tests	35%
Quizzes	15%
Homework	10%

Grading Scale:

90-100..... A

80-89..... B

70-79C

Below 70..... F

NE/I....Not Evaluated/Incomplete

Please understand that strong performance in every category is necessary to ensure a passing grade.

Materials: (2) 100 pg. spiral note books 1 notebook for each semester. (2) Composition notebooks, one for in class labs and one for science fair. (1) Tri-Fold board for science fair. Loose leaf paper for extra note taking, blue or black pens, pencils, highlighters, erasers, and index cards. The spiral materials should be brought to school every day.

CLASS POLICIES & PROCEDURES

It is the student's and parent's/guardian's responsibility to make arrangements for make-up work. These arrangements should be made before or after school and should not disrupt the instructional period. ALL work is expected to be turned in on time. Assignments are due during the scheduled class period and must be turned in when requested by the teacher; failure to submit assignments when requested, will result in a late penalty.

- Homework: No late work accepted. Make-up work only accepted for excused absences within one day of return.
- Lab Make-up: Teacher selected topic that corresponds to the missed lab. Lab make-up assignment must be submitted within one week of your return to school.
- Projects: Due dates are given in advance, this is the last day the project will be accepted. Projects may be turned in early.
- Test Make-up: Will be done the day of return after the documented excused absence.



LATE WORK

It is important that students learn to honor and meet due dates and deadlines for class assignments. Students must adhere to due dates and deadlines published in the syllabus or otherwise assigned by the teacher. If a student misses a published due date as a result of an unexcused absence, his or her grade for that assignment can be reduced at the teacher's discretion. A student who misses a due date that was previously assigned because of an approved excused absence must submit the assignment the next notebook check. **Teachers cannot refuse to accept students' work that is late because of an excused absence. Suspensions are excused absences.**

DAILY ASSIGNMENTS AND MAKEUP

Students who fail to turn in daily assignments due to unexcused absences are not entitled to make up the work for credit. This includes class cuts. Students who miss daily assignments due to excused absences are allowed to make up the work **within three class periods upon his or her return to school.** Arrangements for making up tests, class work, and other assignments after absences are the responsibility of the student.

- * *Quiz/Make Up*- Students must make up any quiz or test the following Monday after school of his/her absence after school during tutorial.
- * Notebook checks - All notebooks are checked on quiz and test days. If the student is absent on the day of the notebook check, the notebook will be checked the next test or quiz whichever comes first.
- * *Notebook check make up* - If a student does not have his/her assignment in the notebook, the assignment is not completed, or the student does not have the notebook in class the student will receive a **zero** on that assignment. The student will have the opportunity to complete the assignment and get the assignment rechecked on the next test or quiz day which ever one comes first. The student will receive a 30 pt. deduction from the missing assignment(s) until the assignment(s) is/are completed.

****INCLEMENT WEATHER PLAN****

In preparation for both the hurricane season and winter weather, Atlanta Public Schools must think about inclement weather and the potential for school closings. Weather days can add up quickly and valuable learning opportunities for our students can be lost. For this reason, Atlanta Public Schools will use teacher created Inclement Weather Plans in the event of school closings. Students will be able to access the plans via their assigned Google Classroom account.

If students do not have internet access and are unable to complete the assignments at home, they will have up to *three weeks* to complete them *after returning to school.*

Should inclement weather occur, Google Hangouts will be enabled for ALL students and staff. Students will have the option to chat with their teachers about assignments should they need assistance.

ACADEMIC HONESTY

Students are expected to adhere to the highest standards of academic honesty. Plagiarism occurs when a student uses or purchases ghost-written papers or products. It also occurs when a student utilizes ideas or information obtained from another person without giving credit to that person. If plagiarism or another act of academic dishonesty occurs, it will be dealt with in accordance with the academic misconduct policy as stated in the Atlanta Public Schools Handbook and the Benjamin E. Mays High School Handbook.



PARENT-TEACHER CONFERENCES

Parents-Teachers conferences are held **monthly in the cafeteria**. Parents and guardians do not need to make an appointment to attend. The purposes of a parent-teacher conference are:

1. To give parents and teachers a better understanding of the child's performance,
2. To promote close cooperation between the home and school in fostering the growth of the whole child,
3. To give a more accurate picture of the child's school growth as shown by achievement, and
4. To promote a better understanding of the objectives of the school

INFINITE CAMPUS ACCESS

Parents can access their student's grades, schedule, and attendance online via Infinite Campus Parent Portal <https://ic.apsk12.org/portal>. To activate your account, visit the school registrar to receive your login (activation key).

PROGRESS REPORTS AND DEFICIENCY NOTICES

In an effort to keep parents abreast of their student's academic standing, progress reports will be issued each month and deficiency notices will be issued in accordance with the Atlanta Public Schools dates. *(Please see the APS 2019-20 Calendar for specific dates.)*



2019-2020 Syllabus Agreement Form

I am VERY excited to get to know all of my students and their families. I believe any student can learn physical sciences. However, some students will have to work harder than others and will need more support to master the content. I will offer any support students need to succeed. I encourage students and parents/guardians to contact me with all questions and concerns anytime. You can leave a voice message or written message at the school and I will also check my e-mail several times every day. Please do not hesitate to contact me. Let's have a great year!

I, _____ have received and read this syllabus. I understand all course policies, and I know that I can reach Ms. Gore by phone or email at any time.

Student Signature: _____ Date: _____

I, _____, the parent/guardian of _____, have received and read this syllabus. I understand all course policies, and I know that I can reach Ms. Gore by phone or email at any time.

Parent/Guardian Signature: _____ Date: _____

Parent/Guardian's BEST contact number: _____ (circle one) Home Cell Work

Parent/Guardian email address: _____

How do you prefer to be contacted? (Circle all that apply)

Phone Call Text Message Email Doesn't matter

(Optional) Is there anything about your child that I should be aware of? This includes medical issues/allergies, personality traits/interests, past performance in science, or ways to motivate/inspire.



Chemistry Safety Contract

(Attached to the syllabus and must remain in the Academic Portfolio at all times)

STUDENT AGREEMENT

Do you wear contact Lenses? <input type="radio"/> Yes <input type="radio"/> No	Are you color blind? <input type="radio"/> Yes <input type="radio"/> No	Do you have allergies? <input type="radio"/> Yes <input type="radio"/> No	Do you have asthma? <input type="radio"/> Yes <input type="radio"/> No	Do you have other medical conditions? <input type="radio"/> Yes <input type="radio"/> No
If "yes" to allergies and/or medical conditions, list here.				

I, _____ (student's name) have read and agree to follow all of the safety rules set forth in this contract. I realize that I must obey these rules to insure my own safety, and that of my fellow students and instructors. I will cooperate to the fullest extent with my instructor and fellow students to maintain a safe lab environment. I will also closely follow the oral and written instructions provided by the instructor. I am aware that any violation of this safety contract that results in unsafe conduct in the laboratory or misbehavior on my part, may result in being removed from the laboratory, detention, receiving a failing grade, and or dismissal from the course. ***Since laboratory work is addressed in course standards, any unsafe behavior on my part that requires disciplinary action may negatively impact my grade.***

Student Name (printed)	
Student Signature	Date



Dear Parent or Guardian:

We feel that you should be informed regarding the school's effort to create and maintain a safe science classroom/laboratory environment. With the cooperation of the instructors, parents, and students, a safety instruction program can eliminate, prevent, and correct possible hazards. You should be aware of the safety instructions your son/daughter will receive before engaging in any laboratory work. Please read the list of safety rules on the attached Chemistry Safety Contract.

No student will be permitted to perform laboratory activities unless this contract is signed by both the student and parent/guardian and on file with the teacher. Your signature on this contract indicates that you have read this Student Safety Contract, are aware of the measures taken to insure the safety of your son/daughter in the science laboratory, and will instruct your son/daughter to uphold his/her agreement to follow these rules and procedures in the laboratory.

Parent/Guardian Name (printed)	
Parent/Guardian Signature	Date