

Mrs. Kimberly Culbertson
Dulaney High School

kculbertson2@bcps.org
culbertson.pbworks.com
Twitter: @kculbertson2

2013-2014 Honors Chemistry Syllabus

Overview: Chemistry is the study of matter, inorganic and organic substances. Students will examine the composition and properties of representative materials that make up our world and investigate the changes these materials undergo. Students will actively classify matter in accordance with properties, composition, structure, reactions and/or uses in order to organize the diversity observable materials into models that they can understand. This course is a STEM course that will integrate the science of chemistry with technology, engineering, and mathematics.

Required Supplies:

Text book: Chemistry

3 ring binder with a Chemistry section
Headphones

Writing Utensil

Scientific (TI-30X) or graphing calculator*

If you are using a graphing calculator, please be prepared for the memory of your calculator to be erased before and after each quiz and test – no exceptions.

Evaluation: Assessment will include all three of these components: retention of information, lab and investigation processes, and real world application. Your final grade will be determined according the BCPS policy.

Quarter grade =

50% Classwork (drills, labs, worksheets, etc.)

45% Tests, Quizzes, and Projects

5% Homework and Class Preparation

Letter Grades:

100-90% = A 89-80% = B 79-70% = C 69-60% = D 59-50% = E

Missing Work: A missing assignment is that which the student was present for but did not turn in. Students will be given an incomplete (“mi” on progress report) for missing assignments until the unit test is administered. Missing assignments can be made up for a grade no higher than a 50% by completing an alternative assignment after school on Tuesdays from 2:30-3:45pm. After the unit test is administered all missing work will be recorded as a zero (“inc” on progress report).

Attendance: You are expected to be in class, on time every day. BCPS policy regarding the number of excused/unexcused absences and term failure will be followed. Tests and quizzes may contain material not found in the text, making attendance even more important. If you are absent from class please provide the teacher with the excuse note issued by your homeroom teacher the day that you return. You will not be permitted to make up any assignments until an excuse note is presented.

Make-Up Work: You will not be permitted to make up any assignments for a grade until an excuse note is presented. Assignments that were missed while a student was absent will appear as “ab” on the progress report and must be made up promptly. If you would like to see what you missed before

coming back to school please refer to the wiki to download and print missed documents (Culbertson.pbworks.com → Honors Chemistry (on sidebar) → Assignments). For copies of handouts while you were absent, present your excuse note to the teacher and she will provide you with your materials.

Coach Class: Please come see me for additional help if you have any problems or need a review, I am more than happy and willing to help you! I am available every morning before homeroom, Tuesday 2:15-3:45pm, and by appointment.

Notebook: An organized notebook will be maintained for this course to ensure your success. There will be at least one open-notebook pop-quiz per quarter to be included in your classwork grade. The following should be included:

1. Table of Contents
2. Coursework. *A table of contents will be included in this section*
3. Safety Contract
4. Chemistry Reference Tables ***One copy per student. May be used on any assignment throughout the year unless there is additional writing on the packet. If a packet contains additional writing on it, besides the student's name, it will not be permitted for use on tests or quizzes.*

Laboratory: Lab work can be among the richest experience that students have in the classroom. It provides students the opportunity to explore science and make invaluable connections between coursework and real-life. In order for labs to be effective, students need to understand not only how to do the experiment, but why the experiment is worth doing, and what purpose it serves for better understanding a concept, relationship, or process. To achieve these goals students need to:

1. Come to lab with completed pre-lab and proper dress (closed-toe shoes). If the pre-lab is not complete and/or the student is not appropriately dressed, the student will complete an alternative assignment in class and complete the lab analysis using mock data at home.
2. Demonstrate proper safety techniques at all times. Any safety violation will result in a zero for the lab grade.
3. Participate in the execution, data collection, and analysis of the lab. If a student does not cooperate with lab members, the student will be given an alternative assignment in class and complete the lab analysis using mock data at home.
4. If a student is absent from a lab you will be given mock data and will complete the analysis on your own.

Laboratory Grade: Students may be graded in the laboratory via the following methods:

1. Lab-Quiz to be taken on Edline. Students have one week from the lab to evaluate the data, procedures, and purpose of the lab and submit their answers. The lab-quiz is open notebook, and you may collaborate with your peers. *Late quizzes will not be graded.*
2. Group Lab Report. Students will cooperatively work in a group to complete a single group lab report. All students in the group are responsible for the completion the group report. All group members must sign the top of the group copy acknowledging that they agree with the data and analysis put forth. If a group member does not agree, he/she may submit an individual report. Once the lab report is returned with a grade, students in the group have the option of re-distributing the points so that each student's contribution is compensated in the grade. No points can be re-distributed without an agreement by all parties, including the teacher. (For example: Sue and John earn a 19/20 on a lab. Both students and the teacher

conclude that Sue did most of the work on the lab. Sue's new grade would then be a 20/20 and John's new grade an 18/20).

3. Individual Lab Report. Students will work independently to complete a lab report. **This is always an option if a student does not wish to participate in the group lab report.**
4. Lab Summary. Students will write a one paragraph summary of the lab, including purpose, processes, data, analysis, and data evaluation.

Learning:

Learning new content in this course will predominately take place using two models: inquiry and the flipped classroom.

1. Inquiry allows students to explore a concept on their own which results in a deeper understanding and appreciation of the content. This method allows students to take ownership of their learning with the facilitation of the teacher. *"Tell me and I forget. Teach me and I remember. Involve me and I learn"* – Benjamin Franklin.
2. The basic concept behind a flipped classroom is that what was traditionally done in the classroom becomes homework and what was traditionally done at home (homework) is done in the classroom. So what will this look like? The direct instruction or lecture portion of class will become the homework. This will be in the form of watching videos that I have produced using the Experience Everything iPad app. As the students watch the video, they will take notes on vocabulary, content, and example problems. They will also be asked to record any questions that they have about the topic. When students come to class the next day, we will briefly discuss what they watched in the videos and answer any questions they may have. The rest of the class time will be used for practicing the concepts from the video (homework in the traditional setting), and participating in labs and other hands-on activities that are intended to enrich the curriculum. By moving the direct teaching portion of the lesson to homework, it frees up more time in the classroom for me to interact with your student and provide more individualized instruction. ****Please read the contents of the "Flipped Classroom" folder on Edline for a letter to students and parents explaining the reasoning and benefits of the flipped classroom, and a PowerPoint that includes data that I have compiled using this model.****

Rules: The Three R's

1. Please be prepared for class and **Ready to learn**.
 1. If you need materials please ask the teacher *before* class.
 2. No electronic devices (except a calculator), hats, food, drink or chewing gum. If the lesson requires the use of cell phones, please ensure that your phone resumes the off position at the end of the lesson.
 3. Enter the classroom promptly and quietly. Sit in your assigned seat and begin your drill *before* the bell rings. At times, you will receive one extra-credit check if you are done your drill when the teacher comes to your desk. Do not ask the teacher to come back to your desk for a check if she has already passed you. *This means that you have an opportunity to earn extra credit almost every day!*
2. Please **Respect** yourself, your teacher, your peers, the room, and the equipment at all times. Please listen and follow all directions the first time they are given.
 1. Academic dishonesty will result in a zero for the assignment, a phone call home and possibly an administrative referral. This includes cheating, copying another student's work (all students involved are guilty), plagiarism, etc.

2. When using technology sign on using only your BCPS username and password, use only materials and websites designated by the teacher, report all problems immediately, and return equipment in the condition in which you found it.
3. The classroom is only as nice as you leave it. Please no writing on desks or other furniture. Straighten your desk, push in your chair, and throw away any trash before leaving. Fold lab aprons, return goggles face down to the cabinet, return all lab equipment in the condition you found it in, and wipe down your lab station.
3. Please be **Responsible** for your learning by giving 100% effort, 100% of the time.
 1. A study guide will be distributed for each unit that includes flipped classroom videos, vocabulary, textbook readings with extra practice problems, and essential questions. Please use the study guide as a point of reflection to assess your level of mastery for the unit.
 2. No naked numbers! All numerical answers must be written using the correct number of significant figures and be accompanied by an appropriate unit.

Consequences for lateness, disruptive behavior, etc.:

1st offense: A friendly reminder

2nd offense: Phone call home

3rd & 4th offense: Teacher assigned 60 minute detention (Tuesdays 2:30-3:30pm)

5th offense: Administrative referral

Course Outline:

Unit	Approximate Timeline	BCPS Indicators of Learning: Students will be able to...
Matter & Measurement	5 weeks	<ol style="list-style-type: none">1. Use scientific models to explain the composition of matter1. Use the language, instruments, and materials of science to perform chemical investigations2. Apply the processes of mathematics to analyze data and to describe and interpret observations of chemistry
Atomic Structure	5 weeks	<ol style="list-style-type: none">2. Observe the physical and chemical properties of substances to interpret the structure of the changes in matter3. Use knowledge of the atomic structure of matter to explain the arrangement of sub-atomic particles, interactions of atoms, chemical bonding, and isotopes
Chemical Bonding	3 weeks	<ol style="list-style-type: none">1. Apply knowledge of chemical bonding to compare and contrast organic and inorganic molecules
Nomenclature & Chemical Reactions	6 weeks	<ol style="list-style-type: none">1. Use chemical symbols and formulas to determine qualitative and quantitative information about compounds2. Use symbolic or word equations to describe the reactants and products and to identify, compare and contrast types of chemical reactions
Stoichiometry	6 weeks	<ol style="list-style-type: none">1. Use laws of conservation of mass and energy to predict amounts of products and reactants in chemical reactions
Behavior of Gases	3 weeks	<ol style="list-style-type: none">1. Apply the basic laws of thermodynamics to explain phase and chemical changes2. Observe changes in pressure, volume, or temperature of a sample gas in order to describe the behavior of particles qualitatively and algebraically
Acids/Bases & Solutions	5 weeks	<ol style="list-style-type: none">1. Describe the properties of acids, bases and solutions to explain their common reactions and uses
Thermodynamics	3 weeks	<ol style="list-style-type: none">1. Use kinetic molecular theory and collision theory to describe the rates of reactions2. Investigate the connections of chemistry to other fields of science, technology, and society to develop an understanding that science is an ongoing process subject to the scrutiny of investigation