Chemistry, Maybeck High School

Course Syllabus

Course Overview: Students in Chemistry will study the nature of matter and its interactions on the atomic/ molecular level. Class time will consist of lectures, demonstrations, videos, guided practice (i.e., labs) and discussion. They will use the metric system, becoming proficient in estimation. This is a laboratory based science class that teaches measurement, data analysis, and report preparation. In every lab report, students will discuss the experiment's sources of error and the validity of their results.

Course Goals: This course is designed to give students a solid foundation in the principles of Chemistry. Students should be prepared to take the SAT II in Chemistry and college level science courses. They should be capable of distinguishing between elements, compounds, and mixtures. Solutions are a special kind of mixture, which recur frequently throughout the course and should be well understood. Students should understand the structures of atoms and small molecules. They should be able to identify chemical reactions and describe them using the appropriate symbols and formulas, including the energy transfer. The Periodic Table of the Elements should become a familiar tool. Students should develop sufficient laboratory skills and familiarity with chemicals that they can categorize and identify common substances based on their chemical reactivity. Students should be able to apply and explain the gas laws. The chemical mechanisms of reaction types such as acid/base and oxidation/reduction should be well understood. Students should be able to use their understanding of enthalpy and entropy to predict the spontaneity of certain chemical reactions. They should have a broad understanding of the complex, dynamic nature of chemistry and the apparent balance of a system in equilibrium.

Requirements: Students will complete work in the following categories:

Homework & Quizzes: Homework and/or reading will be assigned most days, and is due at the beginning of the period of the next class. Students are welcomed and encouraged to ask questions. Quizzes will be given unannounced as necessary throughout each unit.
Quizzes provide a good indication as to how well prepared students are for the tests.
Points earned on homework and quizzes are 20% of the overall grade.

Labs: 20 % of class time is dedicated to labs. Before doing the lab students must demonstrate their preparation for the lab by having the first half of the report complete. During the lab, students collect data in the tables that they have prepared. A lab report will be due in the **following days**. Lab reports are 25% of the overall grade.

Unit Tests: A test will be given at the end of each unit. Tests will have a variety of questions that may include multiple-choice, true or false, essay, problem-solving or interpretation of a diagram or graph. Test material will be drawn from class work, homework, labs, and reading. Unit tests are 30% of the overall grade. There are six units per semester.

Final Exam: At the end of the semester there will be a cumulative final with multiple choice and lab sections. Save all your work for studying at the end of the semester. The final constitutes the remaining 25% of the overall grade.

Second Semester Chemistry Project: Students choose a topic of interest to them, around which they research and design a lab of their own. This project raises or lowers (only if done poorly or not at all) their overall grade by up to half a letter grade.

Materials: The text for this course is *Chemistry: Connections to Our Changing World*, by Prentice Hall. The text may be kept at home; it is not required during class. Students should bring the following items to class ***every day***: Lined paper, three-ring binder, pens and/or pencils, and a Scientific Calculator (**Put your name on it!**)