PISCATAWAY TOWNSHIP SCHOOLS

COURSE SYLLABUS

Course Title: Conceptual Chemistry

Textbook: Chemistry, Prentice Hall

Teacher: Daniel Taylor

 732-981-0700 ext. 7081

 dftaylor@pway.org Best to reach me through email.

Extra help is after school Tuesday, Thursday, and by appointment.

Course Description: **Conceptual Chemistry** is a 6 credit, full year course for students in grades 10, 11 and 12. This is a lecture and lab course which meets 6 blocks per 7 day cycle. Conceptual Chemistry consists of a basic introductory program that will lead to a foundation understanding of the fundamental principles and applications of chemistry. Included in this program is a consideration of: chemical safety, measurements in chemistry, matter and its changes, atomic structure, the periodic law, chemical bonds, chemical mathematics, types of reactions, chemical quantities (the mole/mass relationship), gas laws and acid-base reactions.

During the course of study, students will learn and develop the following skills: organization, use of content specific vocabulary, safe lab procedures, lab report preparation and the ability to understand and further investigate the basics of chemistry.

Course Schedule: Scope and Sequence

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| **Approximate Time Frame** | **Topic** |
| First Semester: |
| 1st Marking PeriodSeptember through November | **Topics:** Lab Safety, Scientific Method, Measurement, Matter & Energy, The Atom**Specific Content:**Lab Safety rules & equipmentDefinition of ChemistryThe Scientific Method and ExperimentsMeasurements and UncertaintySI Units and ConversionsScientific NotationConservation and Classification of MatterElements, Mixtures and CompoundsChemical ReactionsDefine the AtomStructure and Models of the AtomElectron ArrangementOrbital Notation |

Course Schedule: Scope and Sequence

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| **Approximate Time Frame** | **Topic** |
| First Semester: |
| 2nd Marking PeriodNovember through January | **Topics:** Periodicity, Ionic Bonding, Covalent Bonding**Specific Content:**Organizing the ElementsClassifying the ElementsRadius, Electronegativity and IonizationEnergy and Periodic TrendsIons, Ionic Bonds and their PropertiesBonding in MetalsMolecular Compounds and Covalent BondsLewis Dot Diagram and VSEPR TheoryBond Polarity |
| Second Semester: |
| 3rd Marking PeriodFebruary through April | **Topics:** Chemical Compound Naming,Chemical Reactions, Stoichiometry.**Specific Content:**Naming and Formulas of Ionic CompoundsNaming and Formulas of Molecular CompoundsChemical Quantities and the Mole/Mass RelationshipPercent Composition By MassEmpirical FormulaDescribing Chemical ReactionsTypes of Chemical ReactionsSimple Oxidation Reduction ReactionsBalancing Reaction Equations |
| 4th Marking PeriodApril through June | **Topics:** States of Matter, Gas Laws, Acids and Bases. **Specific Content:**Nature of GasesLiquids and SolidsChanges of StateTheories, Behavior and Properties of GasesThe Gas LawsAcid / Base Definitions, Properties and TheoriesAcid / Base pH scaleNeutralization ReactionsSalts |

**Materials Required:**

* Acceptable notebook
* A variety of pencils and pens
* Textbook
* Scientific calculator

**Classroom, Laboratory Procedures:**

* Wear safety goggles and apron at all times in the lab
* Appropriate personal apparel for lab-work
* Read procedures and know what you will do before lab activity
* Know safety equipment locations and emergency procedures
* Report all accidents and risks to instructor immediately
* Follow lab directions and do not perform any unauthorized lab activity
* Stay alert with controlled behavior at all times in the lab
* Food and beverages are not allowed
* Treat all chemicals as hazardous and use caution with handling chemicals
* Exercise special care when using burners, heat and electrical devices
* Maintain your lab station in good order and clean
* Wash your hands after every lab period
* Observe and adhere to all PHS Rules and Regulations as noted in Handbook
* Follow any specific instructions and procedures of your instructor

# Grading Distribution

* Tests: 40 percent of the marking period (Projects will be assessed as a test grade)
* Laboratory Reports and Projects: 20 percent of the marking period grade (approximately eight will be assigned every marking period)
* Quizzes: 20 percent of the marking period grade (approximately three will be administered every marking period)
* In Class Assignments: 10 percent of the marking period grade
* Homework: 10 percent of the marking period grade (a variable number will be administered and approximately ten will be collected and graded)