

PISCATAWAY TOWNSHIP SCHOOLS

Course Syllabus: Academic Chemistry

Course Title: Academic Chemistry
 Teacher: Daniel Taylor, 732-981-0700 ext: 7081 (Prefer email)
dftaylor@pway.org Best to reach me through email

Extra help available by appointment, Monday, Wednesday & Thursday

Textbook: Prentice Hall "Chemistry"

On-Line Textbook: CK-12 Chemistry for High School FlexBook

<https://flexbooks.ck12.org/cbook/ck-12-chemistry-flexbook-2.0/>

Announcement: Live Zoom Link For Mr. Taylor's Academic Chemistry Class

<https://us02web.zoom.us/j/7365874946>

Course Description: **Academic Chemistry** is a 5 credit, full year course for students in grade 10. This is a lecture and lab course, which meets 5 periods per cycle. Academic 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, stoichiometry, gas laws, solutions, equilibrium, ionization theory 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			
Approximate Time Frame	Topic		
Marking Period One	Topics: Describing Matter, Composition of the atom, Nuclear Chemistry, Arrangement of electrons, Molar Relationships and Periodic Table Specific Content:		
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> Safety Science and engineering practices Tools for analysis. Mathematical Calculations Subatomic particles Rutherford's model of the atom Atomic number and isotopes The hydrogen atom Exploring Radioactivity Types of nuclear equations Nuclear reactors </td> <td style="width: 50%; padding: 5px;"> Uses of nuclear energy Electron configuration Moles Molar mass Organization of the elements Patterns in Electron Configuration Periodic trends Representative metals Transitional Metals Metalloids, Nonmetals </td> </tr> </table>	Safety Science and engineering practices Tools for analysis. Mathematical Calculations Subatomic particles Rutherford's model of the atom Atomic number and isotopes The hydrogen atom Exploring Radioactivity Types of nuclear equations Nuclear reactors	Uses of nuclear energy Electron configuration Moles Molar mass Organization of the elements Patterns in Electron Configuration Periodic trends Representative metals Transitional Metals Metalloids, Nonmetals
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Topics: Chemical Bonding, States of Matter, Molar Relationships, Chemical Reactions and Equations Specific Content:			
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> Introduction to bonding Lewis Dot Diagram and VSEPR Theory Bond Polarity Symbols and names of compounds Describing Molecular Structure Shapes and properties of molecules States of matter, Change of state Structure and properties of Solids & liquids </td> <td style="width: 50%; padding: 5px;"> Physical properties of gases Problem solving techniques Counting Atoms Quantitative meaning of equations; Mass – mass, mass- mole, mole – mole, mole – mass relationships Chemical reactions. Regularities in chemical reactions Balancing chemical equations </td> </tr> </table>	Introduction to bonding Lewis Dot Diagram and VSEPR Theory Bond Polarity Symbols and names of compounds Describing Molecular Structure Shapes and properties of molecules States of matter, Change of state Structure and properties of Solids & liquids	Physical properties of gases Problem solving techniques Counting Atoms Quantitative meaning of equations; Mass – mass, mass- mole, mole – mole, mole – mass relationships Chemical reactions. Regularities in chemical reactions Balancing chemical equations
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Approximate Time Frame	Topic		
Marking Period Two	Topics: Gases and Their Properties, and Solutions Specific Content:		
	<table border="1"> <tr> <td>Relationships among Gas Properties Contribution of the gas laws Combined gas law Ideal gas law Gas Stoichiometry Explaining Gas behavior</td> <td>Use of gas constant Concentration The nature of solutions Colligative properties of solutions Energy and heat</td> </tr> </table>	Relationships among Gas Properties Contribution of the gas laws Combined gas law Ideal gas law Gas Stoichiometry Explaining Gas behavior	Use of gas constant Concentration The nature of solutions Colligative properties of solutions Energy and heat
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	Topics: Acids and Bases, Thermodynamics, Reaction Rates, Reaction Equilibrium, Applications of Chemistry Specific Content:		
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Due to virtual learning, this course will be completed within two marking periods

Required Materials:

- Appropriate electronic device for remote learning, preferably district issued iPad
- A three-ring binder or an acceptable notebook with folder for hand outs
- A variety of pencils and pens, textbook,
- A Scientific Calculator.
- A Periodic Table

Classroom 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 the 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 with soap and water 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 for each marking period:

- 50% for Tests & Quizzes
- 35% Laboratory Reports & Projects
- 15% In Class Assignments & Homework