

## Sargent High School Physical Science Lecture and Lab

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### Topics Covered

1. Lab safety, measurements, and matter
2. Internal structure of the atom
3. Bonds: interactions of atoms to form molecules
4. Counting atoms and molecules
5. Chemical Reactions
6. Nuclear chemistry
7. Kinematics and dynamics
8. Forces, momentum, and Newton's Laws of Motion
9. Energy, work, and power
10. Circular motion
11. Electricity, magnetism, and light

### Course Description

This course is designed to introduce the student to fundamental topics regarding chemistry and physics. The course will give the student practice in critical thinking, reading, writing, as well as an opportunity to further develop collaborative skills in problem-solving and experimental design. The importance of chemistry in the "real world" will be emphasized. The course is oriented towards science students and others who want to learn about how chemistry affects their everyday lives and the career they plan to pursue. Chemistry is an experimental science, and as such, laboratory experiments supplement the lecture and make the course a more complete learning experience.

### Student Learning Outcomes (for students who are successful in the class)

1. Students will be able to interpret, both qualitatively and quantitatively, observable properties (physical and chemical) of elements, ions, and compounds in terms of structural atomic/molecular models.
2. Students will, in some cases, develop, and in other cases, apply simple rules to predict the behavior of molecular and ionic species when they interact. Students will be able to explain the behavior employing structural models, energetics, and/or reorganization factors.
3. Students will learn how the current model for atomic structure was developed, and how this model permits classification of elements and prediction of properties.
4. Students will gain a better understanding of bonding models, and how these models can be used to explain molecular characteristics/behaviors.

## Sargent High School Physical Science Lecture and Lab

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5. Students will develop more thoroughly their critical reasoning, writing, reading, and problem-solving (both quantitative and qualitative) skills.
6. Students will get a basic knowledge of how chemistry impacts their everyday lives.

### **Textbook (will be provided by the school)**

Pearson Physical Science: Concepts in Action(student edition)  
by Wysession, Frank, Yancopoulos (copyright 2017)

### **Homework**

Homework will be assigned nearly everyday, and will be assigned and completed using the textbook provided. The student will have TWO DAYS (including the day it was assigned) to complete the assignment. (For example: if an assignment is assigned on Monday, then it will be due Wednesday at the beginning of class.) Also, every week a small set of supplementary problems will be handed out. The solutions to these problems must be written out and turned-in for grading. Supplementary problems will typically be assigned every Wednesday and due the following Wednesday at the beginning of class. These problems, in general, will be more complex than the homework problems, and will give the student practice synthesizing and applying the concepts learned in class. They will also give me a chance to provide the student with feedback on his/her problem-solving skills before being tested on the material. Late work will be handled as follows....

1st day late	=	a 10% deduction of overall assignment grade
2nd day late	=	an additional 10% deduction of overall assignment grade
3rd day late	=	a grade of 0% will be given for the assignment

### **Lab**

There will be weekly labs in class. Safety and standard laboratory procedures MUST BE followed. Strict rules regarding clothing and safety eyewear will be enforced for the lab. Unless otherwise instructed, the student must always wear safety goggles (indirect ventilation) in the lab. Safety glasses are NOT permitted. Safety goggles will be provided by the school. If the student refuses to wear eye protection, he/she will be asked to leave the lab without finishing the experiment and will receive a zero for that experiment. Wear appropriate clothing and footwear to the lab. Appropriate clothing includes long pants or other attire that covers legs to the ankle; short or long sleeve tops that cover the shoulders, do not have deep-cut necklines, and do not leave exposed skin around the waist or the back, and shoes that cover that toes and heels (no sandals, clogs, or crocs). (In other words, wear jeans, a t-shirt, and tennis shoes - and you will be good to go!)

### **Tests and Final Exam**

There will be at least EIGHT tests and two finals throughout the school year. A final exam will be given at the end of each SEMESTER, and will be cumulative only with the respective semester. The best study aides in preparing for each final are the student's homework, notes, and tests. There will be no surprises on the final (it will be just like the tests, but it will be VERY thorough!) Also, the final will be weighted TWICE that of a normal test.

## Sargent High School Physical Science Lecture and Lab

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### Grading

Coursework grades will be used to calculate a final numerical score for the course. Each component will be weighted as follows:

Homework/Supplementary Problems	40%
Participation	10%
Tests	25%
Labs	25%

Letter grades will not be assigned until the end of the quarter. If the student needs to estimate the course grade at any time, use the following scale:

100.0% - 97.0%	A+
96.9% - 93.0%	A
92.9% - 90.0%	A-
89.9% - 87.0%	B+
86.9% - 83.0%	B
82.9% - 80.0%	B-
79.9% - 77.0%	C+
76.9% - 73.0%	C
72.9% - 70.0%	C-
69.9% - 67.0%	D+
66.9% - 60.0%	D
59.9% - 0%	F

### Cheating

Cheating of any sort will not be tolerated. If the student is caught intentionally cheating, the student will receive as a MINIMUM penalty of zero for that work. Repeated instances of cheating will result in an F for the course and may be subject to additional discipline (suspension or expulsion).

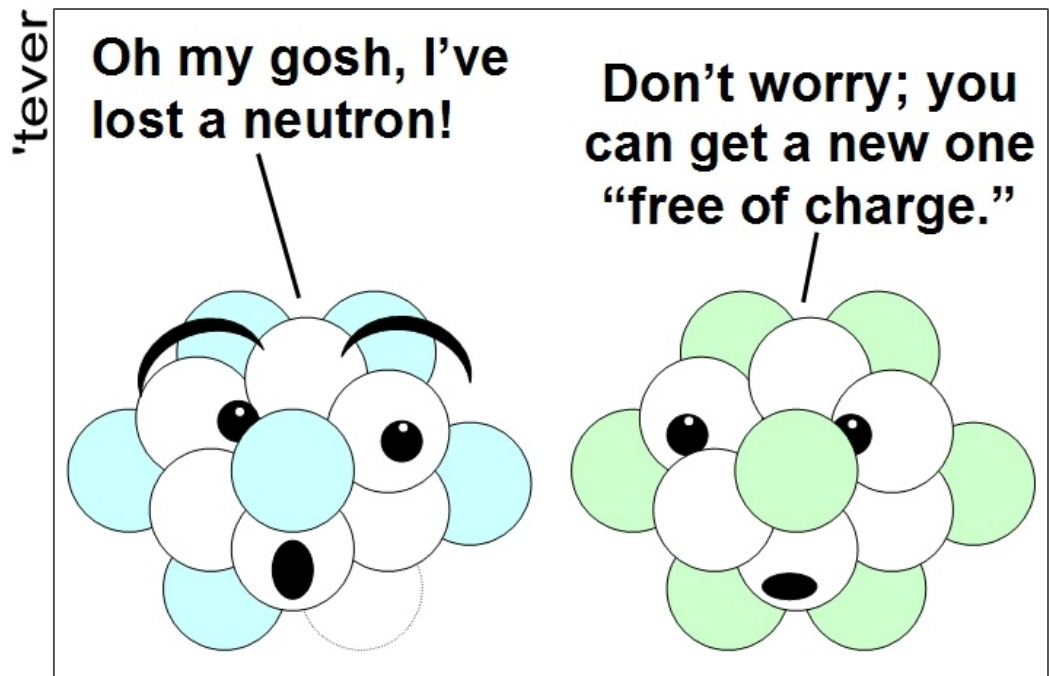
**Special Consideration**

If the student requires course adaptations or accommodations because of documented disability, if the student has emergency medical information to share with me, or if the student needs particular arrangements in case the building must be evacuated, please meet with me and inform me of the particular situation as soon as possible.

and finally...

As the instructor of the class I reserve the right to change, edit, and revise the syllabus and the course content as needed.

I expect a lot from my students, and in return I give all the help I can. PLEASE come talk to me if/when you need help. Helping you succeed in the classroom is my job, and it's a job I love to do.



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