

10th Grade Introduction to Physics and Chemistry



North Allegheny Intermediate High School

2021-2022

Mrs. Amy Rak

arak@northallegheny.org

Room 930

Course Description:

Students in Introduction to Physics and Chemistry will use laboratory exercises, demonstrations, and other classroom experiences to learn about the non-living physical world. Students will have one semester of introductory physics and one semester of introductory chemistry with a final test at the end of each semester. Scientific models are developed and used to explore and explain physical and chemical phenomena. Students should be capable of learning by inquiry and working cooperatively in small group and large group laboratory situations. This class meets five periods per week.

Course Units:

First Semester - Physics	Second Semester - Chemistry
<ul style="list-style-type: none">• Scientific Method• Metric Measurement• Scientific Graphing (Microsoft Excel)• Motion (speed, velocity, momentum, acceleration)• Laws of Motion (forces, gravity, Newton's Laws)• Work (power, simple machines, efficiency)• Energy (potential, kinetic, light, sound, heat)	<ul style="list-style-type: none">• Kinetic Molecular Theory (states of matter, phase changes, energy and matter)• Atomic Theory (atom history, protons, neutrons, electrons)• Electricity (static, current, circuits)• Periodic Table (elements, trends, groups)• Compounds (molecules, chemical formulas)• Chemical Reactions (acids, bases, oxidation)• Polymers (bio-molecules, DNA)

Course Materials:

- 3 ring binder (1 inch, or a section in a larger binder) or a folder to keep paper handouts
- Pencil, highlighter
- School issued laptop

Course Philosophy:

- Science MUST be experienced!

Course Objectives:

The student will: develop an attitude of curiosity and involvement with occurrences in his/her environment; develop an appreciation for the contributions of science; recognize the value of solving problems in a scientific manner; develop those intellectual processes of inquiry by which scientific problems are explained, predicted, and/or controlled; develop knowledge of scientific facts, terminology, concepts, processes, and principles, to confront and interpret occurrence in his/her environment; develop abilities to handle, construct, and manipulate materials and equipment in a productive and safe manner; develop the ability to measure and organize scientific data; learn to deal responsibly with science and technology related societal issues; and develop an awareness of the nature of careers in science and technology.

Course Expectations:

Each student is expected to be an engaged and active learner whether the lesson is note taking, discussions, demonstrations, or labs. You may come across topics that are difficult to understand, but you are expected to still be prepared for class and come willing to continually try. To be successful in this class, just remember to be:

Ready (bring materials, complete homework, and have a positive attitude)

Active (participate by asking, listening, reading, writing, and doing)

Kind (be kind to each other, other's ideas, and other's belongings)

Course Grading Policy:

Grades in this class will be 60% **summative** (some labs, some projects, quizzes, tests) and 40% **formative** (some labs, some projects, classwork, homework).

100%-90%=A 89%-80%=B 79%-70%=C 69%-60%=D 59%-0%=F

Please check Tyler SIS for grades → (M=missing; x=exempt; no score=not yet input by teacher)

- Tests will be given in each unit throughout the year, as well as a cumulative final at the end of each semester. All tests will be announced, and study materials will be shared ahead of time.
 - If you have 3 summative assessments scheduled for one day, please send an email to all 3 teachers involved to request an alternative test schedule BEFORE the test day.
- Quizzes will vary in point value and will be used to assess understanding at checkpoints throughout a unit.
- Labs and demonstrations will be conducted frequently and will be accompanied with questions and/or write ups. Labs may be hands on and/or virtual, individual and/or in groups, formative and/or summative. If lab safety is not maintained, alternative assignments may be provided.
- Projects will occur throughout the year and will be accompanied by a rubric to assist you in ensuring your final product is on target with the task.
- Classwork may include warm-ups, brainstorming, exit tickets, and other formative activities. At times, classwork may become homework if not completed in the allotted class time.
- Homework will be assigned between 2-3 times per week. Due dates can be found on the daily agenda slides.

Late homework/classwork will be accepted. If the work is submitted after the assigned due date, but before the scores have been added to Tyler/the work returned to the class, you will only be penalized 10%. After that point in time, late work will be worth half credit. The latest work will be collected is the day of that unit's assessment.

All submitted work MUST be your own. If work is copied from the internet, text, a classmate, etc. the work will earn zero credit and a second attempt at the assignment will be provided. Both the person copying and the person sharing answers should expect this consequence. Cheating during a quiz or test will result in a score of zero.

Digital Component:

It is expected that you will utilize Blackboard to access material if you have misplaced your original copy or if you are absent. In each unit folder there will be PDFs of all class notes, handouts, and unit resources. I will be using the Announcement feature to post any important class updates, including information regarding quiz and test dates.