

Physical Science Syllabus Fall 2020

Instructor: Alex Pedersen, NBCT

B.A. *Physics* with a minor in *Mathematics*

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Time available: 4th (1:30-3:00)

Website: We will use Canvas for our virtual instruction.

Course Overview:

Physical Science is the study of the world around us, everything from the smallest atom, to the largest mountain and beyond. This course will use discussions, mathematical analysis and laboratory experiments to explore the principles of physics and chemistry as an introduction to future coursework. This course is also designed to encourage the development of scientifically literate students by studying current science events and topics relevant to the world today.

Grading:

Final grades will be calculated based on your proficiency of the listed objectives. Grades for each unit will be determined by recent trends in understanding of objectives for a particular unit, not based on averages. For example, if a student does poorly on the first graded assessments during a unit of learning, but improves their understanding of the material and shows proficiency on later assessments then the grade will reflect the current understanding of the objectives. Proficiency of a unit can be demonstrated through formal and informal assessments, lab activities, tests, projects and student-generated assessments. All students will be required to keep an up-to-date assessment portfolio. A portfolio will contain assessments for each unit of learning. Students are **required** to show proficiency on all objectives in each learning unit using, at least, two unique assessment tools. These assessments will be further discussed in class. Proficiency of all units can be demonstrated throughout the semester.

Assignments

Homework is a necessary step in the learning process. Homework will be used as practice for concepts that have already been mastered during class.

Day labs are short activities to be completed in class that may or may not include a formal lab write up. Home work time on these will be kept as short as possible.

Large projects will be assigned and may take 2-3 weeks to complete. Characteristics of the projects will be discussed upon assignment of the project, and more extensive home work time may be required.

Students should expect, and be prepared for, a quiz EVERY Tuesday and Thursday.

Summative assessments (tests) are a way for students to prove what they have learned during a unit of study. They are the most accurate demonstration of understanding. Multiple assessment formats will be used in order to assess student understanding.

Assessment portfolios are another way for students to demonstrate their understanding of class content. At least one assessment piece is **required** for each unit of learning.

Materials needed:

Students are required to bring with them at all times are a **pencil**, dedicated physical science notebook, and a **calculator** (no need for a graphing calculator yet, cellular phones MAY NOT be used as calculators).

Absent/make-up work:

Make-up work when there is an unexcused absence will follow school policy.

Late work:

Late homework will be accepted with minor penalties. Homework is used for practice, not a demonstration of mastery; therefore it will count for only about 5% of student's overall grade. Late projects, and other assignments that can demonstrate mastery, may be accepted with no penalty. This policy will stand at teacher's discretion.

Classroom "Rules":

This classroom will be run as a professional learning environment, and students are expected to act in such a manner. This means that they are expected to be on time and prepared for every class. I will keep a light atmosphere where group work is encouraged, but distractions to others will not be tolerated. Respect is the only rule written in stone. Ideas will be shared and I am asking students to take some risks and the only way this is

possible is if there is mutual respect between me, the students and the class as a whole.

Cell phones are not to be out in sight or use during instructional, practice, group work, or assessment times. There will be times I ask students to use their devices for research purposes. If a student violates this rule, I will ask student to turn off the device and hand it to me or place it on my desk to be returned at the end of class. Multiple offenses by the same student will result in the cell phone being turned in to the office for parental pick-up and a conference with me. Please help me reinforce the importance of time-on-task and limiting unnecessary distractions.

Any student that attempts to harm another individual, physically or emotionally, will be immediately removed from the classroom and dealt with following school and county policy. I do not anticipate any problems and expect this to be a fun experience for all.

Tardies:

Time for tardies must be made up according to the following. Failure to serve the make-up time will result in office referral.

- 1st offense: Warning
- 2nd offense: Break time detention & parent contact
- 3rd offense: Office referral and ISS
- 4th offense: Office referral and additional ISS

***Tardies beyond 5 may include loss of additional priveleges such as dances, Prom, or other extracurricular activities.

Topics Covered:

Week	Topics
1	Understanding science, making measurements, graphing, lab safety
2-3	Motion, frames of reference, displacement, velocity and acceleration
4	Force and Newton's Laws of Motion, friction
5-6	Kinetic and Potential Energy, work, thermal energy, power, simple machine
7-8	Wave properties, wavelength, frequency, amplitude, speed
9	Static electricity
10-11	Electrical current and circuits
12	Atomic theory
13	Periodic table
14	Chemical bonds, binary formula
15	Physical and Chemical changes
16	Types of chemical reactions, balancing chemical equations
17-18	Solutions, acids and bases, nuclear chemistry

**A more detailed list of weekly topics, weekly lessons, and main ideas will appear on my website, <http://www.lcsnc.org/nlhs>