

Physical Science

Welcome to Physical Science!

All Sophomores will be taking Physical Science at STEM to instill the practices of scientific method and an understanding of the physical world. The class is split into two semesters of focus. First semester will be the properties of Physics with units on forces, motion, energy, and waves. Second semester will be an introduction to Chemistry. Students will learn about matter, atomic structure, bonds, and reactions. Second semester will be important as it will be a building block for the Junior year class, AP Chemistry.

Classroom Guide

This class will blend introduction of concepts, application through problem solving, and explorations through labs. Collaboration will be an essential skill as students will work in lab teams to collect data while also working to demonstrate the understanding as individuals. Clear note taking, engagement in class activities, and individual practice will be essential for student success. Resources for class will be shared through [my website](#).

Course Overview

Physical Science is broken into units emphasizing components of physics and chemistry. Students will be assessed every two to three weeks on their understanding of concepts through quizzes or tests. The class will also have activities, labs, and Big Questions that will further student learning of concepts. Since students will be assessed frequently, staying on top of their learning will be important as will being proactive about struggles with material. Students will need to ask questions and reach out for support when needed because of the cumulative nature of the material. Each successive unit will become more challenging without comprehension of prior material.

PBL Incorporation

PBL in this class will have a three fold approach. Traditionally PBL has been addressed as Project Based Learning, and will continue to be a part of our curriculum. In addition to Project Based Learning I want to incorporate Problem Based Learning and Phenomenon Based Learning to round out the experiences in the classroom. Problem Based Learning uses specific problems or challenges that are faced as application practices for students. Phenomenon Based Learning looks at real world experiences that students interact with and develop complete explanations about through their learning.

Each unit will have formative and summative assessments to monitor your progress. After completing related units we will look at some Big Questions we can answer using PBL thinking and the prior knowledge accumulated through the year.

Classroom Expectations

Group work is an essential part of my classroom. With group work comes team work, but it can also develop interdependence. A student should be able to do any team action for themselves. Groups are how ideas are introduced and practiced, but assessments are almost always individual. This means that each student is responsible for engaging and knowing the material.

Reading and notes are important components of the class. During the third quarter students will read *The Disappearing Spoon* by Sam Keane. We will use this book in conjunction with our periodic table unit. Notes will also be a key element for learning and studying material for assessments. Students should be using their notebooks daily and writing summaries to help put notes into their own words.

Additional classroom resources will support students in their learning, but there will be homework in this class and students should expect to engage in work outside of the classroom. The amount of time needed to complete homework will reflect how effectively they use class time. Some students have minimal amounts of homework while others who are not effective in class will have much more.

Assessment and Learning

Our gradebook will be a points based gradebook with each assessment being assigned as either formative or summative. The grading scale will look more traditional that should support understanding of student grades.

Formative Assessment

The purpose of formative assessment is FEEDBACK! This is the number one tool for students and teachers to evaluate progress within a concept outside of the daily classroom interactions. Formative work will be worth 25% of a student's grade and is essential for preparing for the summative assessments in class. There is almost always a correlation between formative and summative success. The key to formative assessments is for students to understand if they can answer the questions for themselves and then address challenges before the summative assessment.

Summative Assessment

Summative assessments will comprise the remaining 75% of the students grade. This will be some labs, tests, projects, presentations, or other assignments throughout the year. These will be comprehensive for a unit, address Big Questions, or in depth looks at concepts that are core to Physical Science.