



Course Syllabus

Franklin High School		2020-2021
Course Overview		
NOTE: A more interactive version of this syllabus is available at bit.ly/MrBphysics		
Course Title: NGSS Physics		
Instructor Name: Scott Barrentine	Contact Info: sbarrentine@pps.net	
Grade Level(s): 9th		
Credit Type: Science	# of credits per semester: 1	
Prerequisites (if applicable): n/a		
General Course Description: By using the ideas described in Next Generation Science Standards, this course prepares students to make predictions, plan and conduct experiments, collect data, engage in data-centered discussion and enable analysis of the results and argument from evidence. This course builds on the NGSS Physical Science standards from middle and elementary school.		



Prioritized National/State Standards:

HS-ET1-2: Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.

HS-PS3-3. Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.

HS-PS2-1 Analyze data to support the claim that Newton’s second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

HS-PS2-3 Apply science and engineering ideas to design, evaluate, and refine a device that minimizes the force of a macroscopic object during a collision.

HS-PS4-4: Evaluate the validity and reliability of claims in published materials of the effects that different frequencies of electromagnetic radiation have when absorbed by matter

HS-PS3-5. Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.

Practice: Obtain, Evaluate, and Communicate Information

Course Details

Learning Expectations

Materials/Texts:
Access to Canvas

Course Content and Schedule:

By using the ideas described in Next Generation Science Standards, this course prepares students to make predictions, plan and conduct experiments, collect data, engage in data-centered discussion and enable analysis of the results and argument from evidence. This course builds on the NGSS Physical Science standards from middle and elementary school.

Differentiation/accessibility strategies and supports (TAG, ELL, SpEd, other):

Strategic Groupings, such as matching a student who is struggling with physics with one at a slightly higher level of ability.

Instruction strategies such as:

- Tiered tasks
- small group instruction
- Graphic organizers
- Agendas

Differentiation for English Language Learners will be based on SIOP practices....

Lesson Preparation: objectives will be clearly defined (content and language objectives), content will be appropriate for age and educational background.

Building Background: concepts will be explicitly linked to students' background experiences and past learning.

Comprehensible Input: Speech will be appropriate for students' proficiency levels and tasks will be clearly explained. A variety of techniques will be used to make content clear.

Strategies: Scaffolding techniques will be used consistently to assist and support student understanding. A variety of questions/tasks will promote higher-order thinking.

Interaction: Frequent opportunities will be made for interaction and discussion between teacher/students, among students, etc. which encourage elaborated responses about concepts. Sufficient wait time will be consistently utilized.

Practice/Application: Students will use digital materials, including but not limited to PhET's, video's, Google docs/forms/sheets/slides, Canvas discussions, and Canvas assignments to interact with and practice content knowledge.

Lesson Delivery: Content and language objectives will be clearly supported by lessons. Pacing of lessons will be appropriate for and responsive to student needs.

Review & Assessment: Regular feedback will be provided to students on their output. Key concepts and language will be reviewed before assessments.

In addition to being familiar with each student's identification status we use universal design strategies so that there are multiple entry points to every lesson.

Assessments will be individualized, proficiency based and differentiated so that all students show evidence of academic achievement in the 4 skills being assessed.

Safety issues and requirements (if applicable):

In-Person:

- Perform only those experiments and procedures authorized by the instructor.
- Be properly prepared to conduct all experiments. Pay attention to laboratory safety instructions and be sure you understand what you are doing before you proceed. Know the location of the SDS and be familiar with what the sheets indicate for the hazardous chemicals being used.
- Conduct yourself in a responsible manner at all times. No horseplay, or other fooling around should ever occur in the laboratory.

Classroom norms and expectations:

Teachers and students will co-create classroom norms specific to each class and will use the Franklin STRONG values to guide their participation in synchronous and asynchronous work.

Classes will take place on Google Meet/Zoom. During Synchronous times, students must arrive on time at the beginning of class, and then may be placed in Breakout Rooms or Small Groups.

Assignments are listed in Canvas. Students are expected to collaborate with group members, and keep microphones off when others are talking.

Asynchronous class time is flexible and may involve individual assignments, small group work, one-on-one meetings, or other options. Directions given on Canvas and via students' PPS email account.

Evidence of Course Completion

Assessment of Progress and Achievement:

The Gradebook consists of four Skills: Design, Explain, Analyze, Reflect.

We use the Proficiency Model, which allows students multiple opportunities to demonstrate their level for each skill.

- HP - 4 - **Highly Proficient**, you're a wizard at this
- P - 3 - **Proficient**, you understand how to do this
- CP - 2 - **Close to Proficient**, you are near the expected understanding
- D - 1 - **Developing**, you still need more practice and support

*This language reflects the way I want students to approach this class, with a growth mindset instead of a fixed one.

The whole class is aligned with the NGSS; for a full breakdown see [this page](http://patternsphysics.com) at patternsphysics.com.

Grades are based on the student's demonstration of understanding of the standards.

Every assignment within each Course Objective gets averaged together to give a proficiency grade for that objective.

Make-up assignments, revisions, and opportunities to improve grade will be dealt with on a case by case basis.

Progress Reports/Report Cards (what a grade means):

Letter grades on report cards are calculated based on scores on the Course Objectives:

Assignment will be graded on this scale:

HP (4) - Highly Proficient
PR (3) - Proficient
CP (2) - Close to Proficiency
DP (1) - Developing Proficiency

At the end of the semester, averages convert to letter grades determined by the following:

A - 3.5-4.0
B - 3.0-3.4
C - 2.5-2.9
F - < 2.4

Career Related Learning Experience (CRLEs) and Essential Skills:

Students are learning to pull together information and use new skills to solve problems.

Communication with Parent/Guardian

What methods are used to communicate curriculum, successes, concerns, etc.?

Parents have access to act as an observer on canvas by setting up their own account. They can see the assignments for the week and their child's progress. In case of concerns, parents will be contacted via the information provided in Synergy. Please contact me at sbarrentine@pps.net if you need help pairing with your child's canvas account.

Personal Statement and other needed info

I promise to show up each day, prepared and with enthusiasm. My number one priority is to build relationships with students to support each person's success.