



<b>Course Syllabus</b>	
<b>Franklin High School</b>	<b>2019-2020</b>
Course Title: NGSS Physics	Grade Level(s): 9
Prerequisites: N/A	
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.	
Standards: Gradebook is comprised of five Skills: Engage, Design, Explain, Analyze, Reflect, with Explain broken down into 3 parts: "Explain Motion," "Explain energy," and "Explain Forces"	
The whole class is aligned with the NGSS; for a full breakdown see <a href="#">this page</a> at <a href="http://patternsphysics.com">patternsphysics.com</a> .	
Schedule of topics/units covered: Unit 1 - Inquiry and Patterns - Scientific Process Unit 2 - Texting & Driving - Motion and Engineering Introduction Unit 3- Energy and Engineering Unit 4 - Engineer and Shoe - Forces, Momentum, and Impulse Unit 5 - Waves and Technology - Waves and Coding Unit 6 - Electricity and Magnetism - Power Production and Climate Change Unit 7 - Space and the Universe - The Big Bang Theory and Orbits	

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:** Hands-on materials will be provided for students 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.

Final proficiencies:

Engage - I can engage with class work

Design - I can set up, conduct, and explain scientific investigations and the engineering process

Analyze - I can analyze data and argue from evidence

Explain - I can explain scientific concepts (each unit's core concepts)

Reflect - I can reflect on science's impact on society

Assessment (pre/post)/evaluation/grading policy:

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.

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

A - 4.0-3.6

B - 3.5-3.0

C - 2.5-2.9

D - 2.4-2.0

F < 1.9

Behavioral expectations:

Students will:

- Arrive to class on time
- Be responsible for one's own property and behavior.
- Students will follow agreed upon classroom norms. These norms will be posted in a prominent place in the classroom.
- Observe and follow rules stated in the student handbook.
- Bring required materials to class daily, and be prepared for class or lab by completing the required readings or assignments ahead of time.
- Refrain from eating or drinking in class. (We are in a science lab.)
- Cell phone use will not be permitted - off and away unless otherwise instructed!
- Cell phones must be turned off for all quizzes and tests or when any test material is out.
- Refrain from touching any equipment unless instructed to do so by the instructor. Read, understand, sign and return the safety contract.

Safety issues and requirements:

- 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.
- Wear appropriate eye protection, as directed by the teacher, whenever working in the laboratory or in field experiments such as rocket launches. Safety goggles must be worn during hazardous activities involving caustic/corrosive chemicals, heating of liquids, and other activities that may injure the eyes.
- Keep hands away from face, eyes, and clothes while using solutions, specimens, equipment, or materials in the laboratory.
- Splashes and fumes from hazardous chemicals present a special danger to people who wear contact lenses. Therefore, it is preferable for students to wear regular glasses (inside splash- proof goggles, when appropriate) rather than

contact lenses during all class activities or purchase personal splash-proof goggles and wear them whenever exposure to chemicals or chemical fumes is possible.

- Gloves must be worn at all times. Students with open skin wounds on hands must wear gloves or be excused from the laboratory activity.
- Know the locations of fire extinguishers, gas shutoff, fire blanket, eyewash, safety shower, and first aid kit. Emergency exits and aisles must be kept clear at all times.
- Confine or securely tie hair that reaches to the shoulders. Roll long sleeves above the wrist. Long, hanging necklaces, bulky jewelry, and excessive or bulky clothing should not be worn in the laboratory.
- Do not eat food, drink beverages, or chew gum in the laboratory area.
- Work areas and equipment should be kept clean and tidy at all times. Bring only materials specified by your instructor to the work area. Other items such as books, purses, backpacks, etc. must be stored in an area designated by the instructor.
- Dispose of laboratory waste as instructed by the teacher. Use separate, designated containers (not the wastebasket) for the following:
  - Matches, litmus paper, wooden splints, toothpicks, etc....
  - Broken and waste glass
  - Rags, paper towels, or other absorbent materials used in the cleanup of flammable solids or liquids
  - Hazardous/toxic liquids and solids
- Read chemical labels very carefully. Make sure that you have the correct substance in the correct concentration. Check the label twice before removing any of the contents. Follow the instructor's safety instructions for handling hazardous materials.
- Do not return chemicals to their original containers unless you are specifically instructed to do so.
- Always work in a well-ventilated area when using volatile substances or hazardous vapors.
- Handle all chemicals with care. Never taste a chemical. Check odors when instructed to do so by gently wafting some of the vapor toward your nose by hand.
- Never take chemicals, supplies, specimens, or equipment out of the laboratory without the knowledge and consent of the instructor.
- Never work alone in the laboratory without adult supervision.
- Do not enter the laboratory stockroom(s) or storage areas without specific permission from your instructor.
- Transport chemicals, materials and equipment properly as directed by the instructor.
- Human body fluids pose potential dangers and can only be used under strict teacher supervision.
- Always clean the laboratory area before leaving.