

PHYSICS

Lakeside High School

Teacher: Mr. Olson: (509) 340-4236 solson@9mile.org

Prerequisite: “C” or better in any Alg. II/Trig. and previous science course.

Course Description: Physics is the study of the basic physical laws that govern the universe and can be applied to all the sciences. In this course students will explore the major principles of physics using mathematics as the powerful language. Students will discover and explore the physical concepts, through laboratory experiments, demonstrations, videos, student presentations, problem solving, and field trips.
☞ Some special projects include investigations with the *Washington State Patrol on accident analysis*, building and launching *model rockets*, the physics of *pocket billiards*, *astronomy nights* with Olson’s high power telescopes, and the annual *High School Physics Day Competition @ Silverwood Themepark*.

Textbook: PHYSICS Principles and Problems © 1999 Glencoe/McGraw-Hill

Materials: Scientific calculator with logarithmic and trigonometric functions, notebook, and pencils.

Units Explored:

1. Introduction
 - Science and Technology
 - Measurement and Math Review
 - Measurement Uncertainties
2. Kinematics
 - Describing Motion: Displacement, Velocity, Acceleration
 - Vectors and Trigonometry
 - Mathematical Model of Motion
3. Mechanics
 - Forces, Motion, and Newton’s Laws
 - Forces and Motion in Two Directions (Projectile and Circular Motion)
 - Universal Gravitation and Kepler’s Laws
 - Momentum and its Conservation
 - Energy, Work, and Simple Machines
4. Energy, Electricity and Magnetism
 - Sound, Light, and Electromagnetic Radiation
 - Magnetism and Magnetic Fields
 - Static Electricity and Electric Fields
 - Current Electricity: Series and Parallel circuits

Evaluation:

Exams and Quizzes	70 %
Labs & Assignments	20 %
Participation	10 %

*The final letter grades are determined by applying the documented Lakeside H.S. grading scale.

Homework: Homework is an important part of this course. This work will consist of reading, answering questions, problem solving, lab reports, and preparing for presentations. It is important to keep up and get the assignments done on time. Assignments that are one day late will be accepted at 75% of the credit.

Absences/Make-up: (*Students are required to maintain regular attendance to earn high school credit. As per Board Policy 3122 and 2420/2420P, students will be issued a NG (no grade) on the 13th absence. Also note that tardies in excess of 15 minutes are considered an absence.*)

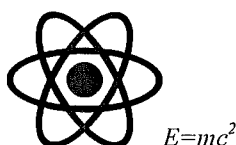
A student is allowed to make up work for excused absences only. For everyday absent a student has 2 days make-up time. Check the Assignment Board and/ or ask Mr. Olson after any absence. For exams and quizzes a different version of the test will be administered.

Tardies/Breaks: If a student is tardy three (3) times to class, the resulting disciplinary action is after-school detention. For every three successive tardies, the student will receive additional ASD. Students are granted 3 bathroom breaks per semester. If additional breaks are required the student must make up the time before or after school

Electronic Devices: Lakeside High School policy states that cell phones are to be turned off and out of sight at all times during class time. This includes in the hallways and bathrooms during class time. Using MP3s, iPods, and other entertaining electronic devices are also prohibited during this class time.

Classroom Polices:

1. We will come to class on time and prepared. Coming to class prepared with assignments completed, eliminates stress and make the class much more enjoyable.
2. We will not talk or interrupt with behavior, while the teacher is speaking or someone else has the floor. Everyone at all times has the right to learn.
3. We will abide by all the safety rules of the laboratory. This will keep everyone and everything safe.
4. We will stay on task and focused throughout the entire class period. Time is precious – we only have 43 minutes per day to explore and learn the valuable concepts.
5. At the end of class we will stay seated until dismissed. We will not line up at the door or run out at the bell. Mr. Olson, not the bell, dismisses the class.
6. We will always treat others with respect, even though we may disagree with their opinion.
“Great spirits have always encountered violent opposition from mediocre minds.”
-Albert Einstein.
7. We will not be afraid to ask for help from, or to give help to, other classmates when needed. Cooperative learning is the most effective and fun way to learn.
8. **We will remember that Mr. Olson is a very approachable teacher, willing and eager to help out at anytime.**



Safety in the Laboratory

If you follow instructions exactly and understand the potential hazards of the equipment and the procedure used in an experiment, the physics laboratory is a safe place for learning and applying your knowledge. You must assume responsibility for the safety of yourself, your fellow students, and your teacher. Here are some rules to guide you in protecting yourself and others from injury and in maintaining a safe environment for learning.

1. The physics laboratory is to be used for serious work.
2. Never bring food, beverages, or make-up into the laboratory. Never taste anything in the laboratory. Never remove lab glassware from the laboratory, and never use this glassware for eating or drinking.
3. Do not perform experiments that are unauthorized. Always obtain your teacher's permission before beginning an activity.
4. Study your laboratory assignment before you come to the lab. If you are in doubt about any procedure, ask your teacher.
5. Keep work areas and the floor around you clean, dry, and free of clutter.
6. Use the safety equipment provided for you. Know the location of the fire extinguisher, safety shower, fire blanket, eyewash station, and first-aid kit.
7. Report any accident, injury, or incorrect procedure to your teacher at once.
8. Keep all materials away from open flames. When using any heating element, tie back long hair and loose clothing. If a fire should break out in the lab, or if your clothing should catch fire, smother it with a blanket or coat or use a fire extinguisher. NEVER RUN.
9. Handle toxic, combustible, or radioactive substance only under the direction of your teacher. If you spill acid or another corrosive chemical, wash it off with water immediately.
10. Place broken glass and solid substances in designated containers. Keep insoluble water material out of the sink.
11. Use electrical equipment only under the supervision of your teacher. Be sure your teacher checks electric circuits before you activate them. Do not handle electric equipment with wet hands or when you are standing in damp areas.
12. When your investigation is completed, be sure to turn off the water and gas and disconnect electrical connections. Clean your work area. Return all materials and apparatus to their proper places. Wash your hands thoroughly after working in the laboratory.

In this *Laboratory Manual* you will find several safety symbols that alert you to possible hazards and dangers in a laboratory activity. These safety symbols are listed and described on the next page. Be sure that you understand the meaning of each symbol before you begin an experiment. Take necessary precautions to avoid injury to yourself and others and to prevent damage to school property.

Student Name & Signature: _____

Parent/Guardian Signature: _____