# Physics Syllabus

**Contact Information**

Instructor: Mrs. Fergusson

Classroom: 104

Phone Number: 810-765-8825 ext39

Email: [cfergusson@cardinalmooney.org](mailto:cfergusson@cardinalmooney.org)

Office Hours: Before School or by Appointment

**Course Description/Overview**

Welcome to Physics! I am excited to have you in my Physics class this year. Physics is a branch of science concerned with the nature and properties of emery and how it changes matter. The subject matter we will be studying this year includes mechanics, heat, light and other radiation, sound, electricity, magnetism, and the structure of atoms. Albert Einstein has mistakenly been called an atheist, in fact when he developed a theory he would ask himself “would God have made His world this way?” If he concluded that the answer to that question was no, then he would discard the theory.

**Learning Objectives**

By the end of the course students should have an understanding of the following principles:

1. A Physics student will use his or her ability to measure matter.
   1. Physical: Using instruments and equipment students will describe the materials presented with accuracy and precision
   2. Chemical: Students will describe the interaction of simple chemical substances with name, formula, equation and model.
2. Students will perform computations/calculations related to Newton’s Laws, Momentum, Gravitation and Heat.
   1. Students will show how physical and chemical measurements are related in a numerical way.
   2. Students will provide information about the concepts in the topics presented.
3. Students will be able to follow both verbal and written directions to accomplish a task which will ultimately lead to the formulation of a conclusion.
4. Students will be able to communicate in a scientific manner.
   1. Students will utilize a verbal or written presentation which shows the interrelationships of the topics and concepts.
   2. Students will show the integration of the topics and concepts of this science into the student's world.
5. Students will explain some of the phenomena of the universe based on the criteria presented in this course of study.
6. Students will continue in the discipline with confidence that a foundation of this discipline has been provided and be able to pursue further study relating to the concepts of this course.

**Course Materials**

* Each student should bring the following materials with them to class each day
  + Textbook: *Conceptual Physics* 10th Edition by Paul G. Hewitt
  + Physics Binder
  + Calculator
* There is no fee for this course.

**Course Resources**

I have a classroom website on which I post a daily agenda, and nearly all materials used in class. If you are missing an assignment or wish to consult my PowerPoint presentations, the classroom website is an excellent resource for you to use. I will also post a majority of the video clips we will view in class.

[www.mrsfergussonclass.weebly.com](http://www.mrsfergussonclass.weebly.com)

**Course Policies**

* Be Respectful…
  + Do not talk while I am talking.
  + Treat your classmates in a manner consistent with how you would like to be treated at all time.
  + Do not waste or deliberately break our equipment and supplies.
  + Take care of all lab and classroom materials; if you or a group member uses an instrument then it is your responsibility to clean up after yourself. If I catch you drawing or in any way marking the lab equipment, desk, etc. then it is your job to clean it up.
* Absent work…
  + Students will be given two days for everyday that they are absent to make up any work that they missed while absent. After that, work will be considered late.
  + All tests missed due to absence must be made up within one week. On the first day back the student should speak with Mrs. Fergusson about a date and time in which the test can be made up.
* Late work will be accepted with –50% deducted.
* Lab safety rules will be followed at ALL TIMES. If I feel that your behavior is potentially dangerous to yourself or your classmates, then I reserve the right to ask you to leave the classroom. If you are asked to leave due to your behavior, then you will receive a zero for that particular lab and you will not be given an opportunity to make up the lab.
* Electronic Devices – cell phones, Blackberries, iPods, PDAs, or any other electronic devices are not to be used in the classroom. Please make sure to bring a calculator with you to class. Calculators are allowed but information exchanges on these devices during class are also prohibited and violate the Scholastic Honesty and Integrity Policy.
* Academic honesty – cheating will not be tolerated by any students in any form. If a student is caught cheating or plagiarizing on an assignment Mrs. Fergusson will award that student a zero for that particular assignment. A second offense in any class will result in an F for the quarter. All incidents are to be reported to the school counselor immediately.

**Laboratory Safety Rules**

1. Read all directions before beginning a lab assignment.
2. Do not touch or handle equipment, chemicals, or other materials until you are instructed to. (Very important – when you come in the room – the equipment will be on the lab tables – do not mess with it – you’ll have all period to do exactly that!)
3. Do not eat or drink during laboratory assignments.
4. Do not perform experiments without permission. Ask and I’ll probably say sure that sounds neat, let’s try it – do it without me saying yes and you’ll be visiting the office!
5. Wear safety goggles and aprons when required.
6. Clean work area when lab assignment is completed.
7. Know the location of safety equipment (first aid kit, fire extinguisher, fire blanket)
8. Wash your hands after performing all experiments.
9. Do not distract other students during laboratory assignments. No horseplay!
10. Students are never permitted in the chemical closet!
11. Properly unplug all electrical equipment after use. Don’t pull on the cord!
12. Report all accidents to teacher immediately.
13. Tie back long hair and do not wear dangling jewelry or loose, baggy clothes.
14. Do not touch, taste, or smell chemicals unless given permission.
15. Never return unused chemicals to their original containers.
16. Do not use chipped or cracked glassware.
17. Never leave an experiment unattended.
18. Do not point anything being heated at yourself or anyone.
19. Use tongs or gloves to move heated objects, not bare hands.

**Physics Binder Requirements**

All students are required to have a three ring binder for class. Students are required to have the following sections in their three ring binder. Each section should be separated with a divider and clearly labeled.

1. Handouts
   * This section includes important handouts that you will use throughout the year. Examples would your calculations sheet, syllabus, etc.
2. Notes
   * Each day you will be responsible for taking notes in this class, as well as taking down important points of discussion and examples in addition to the PowerPoints that I use on a regular basis.
3. Homework
   * All homework assignments should be kept in this section. Often the new material that we cover in class will build off of an earlier topic, so it is helpful to have old assignments accessible.
4. Quizzes & Tests
   * All quizzes and tests should be kept in this section. This will allow you to easily reference past material and also give you a good idea of your progress in this class. We will have a test at the end of each unit which will be worth 100 points, as well as periodic quizzes during each unit.
5. Lab Notebook
   * Students will keep loose leaf paper in this section for their weekly labs. Students will take all of the data collected during the lab to write up a conclusion. For each lab students should make sure that they follow the guidelines outlined in the lab notebook requirements handouts.
6. Lab Reports
   * Lab reports are a formal written assignment. In your lab report you should make reference to the purpose, procedure, and conclusions of the laboratory investigation while using proper grammar. Lab reports should consist of at least one to two paragraphs. Students will be graded on how well they connect the purpose, hypothesis and conclusions of the experiment together. Lab reports will be due on Monday of the following week.

**Course Schedule**

The length of the units varies on student performance and understanding of the material; please understand that the following course schedule is a guide and is subject to change based on student performance and understanding of the information. Each unit will include a unit test, quizzes, and a lab for each week. During the course of the year we will complete the following units. Please note the daily agendas will be posted to the classroom website.

|  |  |  |  |
| --- | --- | --- | --- |
| **Week** | **Unit Number** | **Chapters Covered** | **Topics Covered** |
|  | ***First*** | ***Semester*** |  |
| Sept 5th | Unit 0 | Chapter 1 | Math Review, Measurements, SI Units, Scientific Method |
| Sept 17th | Unit 1 | Chapter 1 | About Science |
|  |  | Chapter 2 | Newton’s 1st Law |
|  |  | Chapter 3 | Linear Motion |
| Oct 1st | Unit 2 | Chapter 4 | Newton’s 2nd Law |
|  |  | Chapter 5 | Newton’s 3rd Law |
| Oct 15th | Unit 3 | Chapter 6 | Momentum |
|  |  | Chapter 7 | Energy |
| Oct 29th | Unit 4 | Chapter 8 | Rotational Motion |
|  |  | Chapter 9 | Gravity |
|  |  | Chapter 10 | Projectile & Satellite Motion |
| Nov 19th | Unit 5 | Chapter 11 | The Atomic Nature of Matter |
|  | Unit 6 | Chapter 12 | Solids |
|  |  | Chapter 13 | Liquids |
|  |  | Chapter 14 | Gases & Plasmas |
| Dec 17th | Unit 7 | Chapter 15 | Temperature, Heat & Expansion |
|  |  | Chapter 16 | Heat Transfer |
|  | ***Second*** | ***Semester*** |  |
| Jan 28th | Unit 8 | Chapter 17 | Change of Phase |
|  |  | Chapter 18 | Thermodynamics |
| Feb 25th | Unit 9 | Chapter 19 | Vibrations & Waves |
|  |  | Chapter 20 | Sound |
|  |  | Chapter 21 | Musical Sounds |
| March 4th | Unit 10 | Chapter 26 | Properties of Light |
|  |  | Chapter 27 | Color |
|  |  | Chapter 28 | Reflection & Refraction |
|  |  | Chapter 29 | Light Waves |
|  |  | Chapter 30 | Light Emission |
| April 8th | Unit 11 | Chapter 22 | Electrostatics |
|  |  | Chapter 23 | Electric Current |
|  |  | Chapter 24 | Magnetism |
|  |  | Chapter 25 | Electromagnetic Induction |
| May 6th | Unit 12 | Chapter 31 | Light Quanta |

# Lab Notebook Requirements

* Students must always write in pen.
* On the first page of your lab investigation
  + At the top of the page you should have the following sections:
    1. Experiment Number
    2. Experiment Title
    3. Your Name
    4. Your Lab Partner(s)
  + In the body of your lab investigation each student should have the following sections:
    1. Purpose
       - What is the point of your doing this lab?
    2. Hypothesis
       - What do you think the outcome of the lab will be?
    3. Data
       - In this section you will put all of the information gathered during the lab
       - This can include charts, calculations, and observations.
    4. Conclusions
       - The conclusion is a formal written assignment. In your lab report you should make reference to the purpose, procedure, and conclusions of the laboratory investigation while using proper grammar. Lab reports should consist of at least one to two paragraphs. Students will be graded on how well they connect the purpose, hypothesis and conclusions of the experiment together. Lab reports will be due on Monday of the following week.
* If a student makes a mistake during one of their labs**, don’t scribble** out the section that you made a mistake on simply **put a single line** through your mistake then write the correct information next to it.
* Each lab report will consist of the purpose, hypothesis, data and conclusion for each experiment. Students will staple all of the lab pages together and turn it in for a grade on the following Monday.

# Grading of Lab Reports

Each lab report is worth 10 points

* 5 points for:
  + Following directions, stating a hypothesis, purpose and including all data from the lab
* 5 points for conclusions
  + Students will be graded on the following scale.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Category** | **5** | **4** | **3** | **2** | **1** | **0** |
|  | Conclusion includes whether the findings supported the hypothesis, possible sources of error, and what was learned from the experiment. Student demonstrates proper grammar and sentence structures. | Conclusion includes whether the findings supported the hypothesis, possible sources of error, and what was learned from the experiment. | Conclusion includes whether the findings supported the hypothesis and what was learned from the experiment. | Conclusion includes what was learned from the experiment. | Conclusion includes little effort and reflection. | No conclusion was included in the report. |