

# KEEP IN BINDER ALL YEAR!

Name \_\_\_\_\_  
SI Physics  
Period \_\_\_\_\_

Date \_\_\_\_\_  
Course Information Sheet  
Mrs. Nadworny

## Scientific Investigations in Physics

<http://www.MrsNadworny.weebly.com>

Welcome to SI Physics! This course information sheet is designed to give you an understanding of what to expect from this course, as well as what I expect of each student.

### Contact Information

- You may contact me in one of the following ways:
  - Science Department telephone # - (631) 262-6704
  - Email - [denise.nadworny@northport.k12.ny.us](mailto:denise.nadworny@northport.k12.ny.us) (Checked every few days)
  - Classroom L-213 or Science Resource S-106



### Textbook

- Holt Physics by Serway and Faughn
  - The textbook will be used in the classroom and therefore each student will not be assigned a book to take home.
  - It is available online at <http://my.hrw.com/>. A username and password will be provided to the students. All homework assignments will include corresponding pages from the textbook for additional reading.
    - Username \_\_\_\_\_ Password \_\_\_\_\_
  - If you do want a textbook at home for reference, it is not a problem, simply see me.

### Supplies

- It is recommended that you get **two 3-ring binders** (1" or thicker).
  - One binder to be brought to class daily to organize the MANY handouts for each unit.
  - The second (a **large** binder) is for you keep at home for storing materials from previous units.
- Pens** and **pencils** are required daily for taking notes and completing laboratory experiments.
- White-out is strongly recommended for students who use pen and like to keep their work neat.
- Loose-leaf** and **graph paper** should be stored in your binder to take notes and create graphs.
- It is suggested that each student get **dividers** to insert into their binders. They are great for organizing the material into specific categories. (Notes, Do Nows, Homework, Review & Tests)
- A basic **scientific calculator** will be needed in almost every class period. They are typically inexpensive and easy to find. If purchasing one is a problem, you may sign one out from the math department.
- You will occasionally need a **metric ruler** and a **protractor**. The ruler must measure in centimeters. It is recommended that you purchase the protractor from the school store. You should bring these with you to class every day.

## Use of Electronic Devices

- Scientific and graphing calculators, as well as any other equipment designated in student's IEP, are the only electronic devices approved for use in class.
- Any other electronic devices being used without authorization are subject to confiscation. Confiscated devices will be returned to students as per the guidelines listed in the Student Handbook.

## Academic Dishonesty

- Any forms of academic dishonesty, such as cheating or plagiarism, will not be tolerated and will result in penalty.

## Grades

- Your grade for each quarter will be based upon the following criteria:
  - Tests (70%)
  - Labs (20%)
  - Homework/Classwork (10%)



## Tests

- Tests will be given at the end of each unit to assess your learning. They are not given to punish you but to give yourself, as well as myself, an idea of how well you are learning the material.
  - Any test with a grade of 80% or lower will require test corrections.
  - Any test with a grade below 65% will also require a signature by a parent or guardian.
- At the end of every quarter, a Quarterly Review Test will be given. If you desire, the grade on this test may be substituted for one of your unit test grades. In order to have the privilege of taking this test, test corrections must be submitted for any test below 80%.
- If you are absent with an excused reason the day of the test you are expected to make-up the test within **3 days or less of your returning to school, or a grade of zero will be given.** You may opt to take the test during the first Physics period you return, or on your own time (free period, lunch, before or after school). Students should see me immediately to schedule a time.
- A Midterm Common Assessment will be given at the end of the second quarter. It will count toward your average in accordance with District policy.
- A Cumulative Exam will be given at the end of the year. It will focus primarily on the Honors level material presented in class. It will count as two unit tests for the fourth quarter, neither of which can be dropped.
- **The Regents Exam will be your official final exam grade** and will count towards your yearly average in accordance with District policy. All students are required to take it in order to receive credit for the course.
- Students should take the **SAT II / PHYSICS** exam on **June** \_\_\_\_\_. It will not count towards your course grade in any way. (We will not have finished the curriculum by the May exam.)



## Labs

- The New York State Physics Curriculum requires all students to complete the lab section of this course in order to be admitted to the Regents Exam in June. To complete the section you must:
  - Satisfactorily complete 30 periods of lab work. Each lab will be kept on file in the classroom.
  - Labs are to be handed in at the beginning of class on the day they are due. If labs are not handed in at this time they are subject to a 10% deduction for each day they are late.
  - All official lab write-ups must be typed. Graphs and diagrams should be attached in their proper location. Specific details will be provided on a separate handout.
  - If you miss a lab period due to an excused absence, you will have **three weeks** to make up a lab during designated make-up sessions. Lab make-up times will be posted in the classroom and are subject to change with advance notice. Labs near the end of the quarter may be required to be made up in less time.
    - Labs done at lab make-ups must be submitted within a certain time frame or they are subject to a grade deduction. Please see your teacher for specific due dates.

### **NORTHPORT HIGH SCHOOL LAB POLICY**

1. All labs are to be handed in at a time as specified by the instructor.
2. Students who do not hand in their labs on or before the due date will face a 10% (one letter grade) deduction per day to be reflected in the final grade of the lab. This penalty is applied when calculating the quarter average.
3. Each instructor will determine whether or not a lab report is suitable enough to satisfy the Regents requirement. It is the responsibility of the student to take direction from the instructor and perform the necessary work to rectify the situation and meet the Regents requirement.
4. The absolute deadline for the resubmission of those labs considered to be unsuitable for Regents standards is two weeks before the end of the quarter.
5. Students who miss a lab due to a legal absence are to see their instructor immediately upon their return and arrange a make-up session. If the missed lab experience involves the use of supplies that are no longer available, the instructor will provide a suitable alternative.
6. A quarterly review of each student's lab folder will be made by the instructor. Letters will be sent to the home of any student who is deficient in labs for that quarter. This letter is to be signed and returned to the instructor, or a parent conference will be arranged.

## Homework/Classwork

- At the beginning of most classes, you will be expected to complete a Do Now.
  - It will typically consist of a few short questions that should be completed within the first 5-10 minutes of class. Each Do Now is subject to being submitted for a grade.
- Other forms of classwork will occasionally be assigned, and asked to be submitted for a grade.
- For each day a classwork assignment is late, 25% of the original grade will be deducted.
- Homework will be assigned several times per unit (usually every night). It will typically consist of completing a worksheet.
- **NO LATE HOMEWORK WILL BE ACCEPTED AND WILL RESULT IN A GRADE OF ZERO!** If you were absent the day homework was assigned you will have **one day** to make up the assignment. If you were absent the day homework was due, you must submit it the day you return to school.
- **ALL** homework will be checked! Occasionally you will be asked to hand in your homework which will be graded.
- We typically go over the questions from the homework the day that it is due, **therefore NO LATE HOMEWORK WILL BE ACCEPTED!**
- With the development of new technologies and the World Wide Web, obtaining learning materials from the internet has become a valuable skill. In order to help develop this skill, I am requiring that all students access and download homework and worksheets from the class website.
- All worksheets will be available on the class website. In order to access these worksheets:
  - Go to <http://www.MrsNadworny.weebly.com>
  - Choose your section (Honors or Regents).
  - Select the Homework Worksheets link.
  - Select the proper unit.
  - Open each assignment by clicking on "Download File".
  - Print all pages **OR** copy each question from the computer screen neatly onto loose-leaf paper.
- Worksheets will be available one week prior to the start of a new unit. It is required that every worksheet for the upcoming unit be printed **BEFORE** the end of the previous unit.
- Due to the fact that computers are available throughout the High School building and the public libraries, it is expected that all students are able to follow this procedure.
- No excuses will be accepted unless accompanied by a detailed parental note explaining the circumstances behind the student's failure to access a computer within a one week period.

## Criteria for Satisfactory Work

- All work must contain the following components, or they are subject to deductions in points.
  - A proper heading must be included at the top of all work. A sample of a proper heading is at the top of this sheet.
  - All responses must be written in full, complete English sentences.
  - All work must be shown when solving numerical problems. At the appropriate time, I will provide instructions explaining how these problems should be completed.
  - Guidelines set up for the NYS Regents exam are a little picky about some things. Solutions to numerical problems require specific components of a solution to be written down or credit may be deducted, even if the answer is “right.” Since these are the rules for the Regents exam, I make them my rules as well.
  - All work must be neat and legible. All mistakes must be crossed out neatly.

## Attendance

### • Lateness

- It is expected that you be on time to every class. In the case of a lateness you are required to submit a pass. All passes must be handed directly to me.
- The third unexcused lateness or any significant lateness may result in detention.

### • Absences

- If you are absent, it is your responsibility to make up any missed work.
- If you are absent for class, but are present in school during any other periods, it is your responsibility to turn in assignments due that day and inquire about any work assigned during the class period.

#### ○ Field Trips

- If you will miss class due to a field trip, you must obtain any work that will be missed BEFORE leaving for the trip. Any work due that day should be submitted before leaving (when possible). Work assigned on that day will be due upon your return.

#### ○ Music Lessons

- If you will miss class because of music lessons, it is your responsibility to inform me PRIOR to the lesson that you will be out and hand in any work due during the period of your lesson. Any work assigned on that day will be due the next day.
- It is not acceptable to miss a test for a music lesson. In the case that you have a conflict, it is expected that you make every attempt to reschedule your lesson or take the test prior to being absent.

### • Cutting

- Any graded work that is missed due to a cut or illegal absence will receive a grade of zero.

## Extra Help

If you ever encounter any difficulty, I encourage you to seek extra help. There are many online resources available, as well as the textbook. Extra help with me is available by appointment. See me for available times as my schedule changes weekly.



# Honors Physics Curriculum

(Italicized topics are Honors only)

1. **Measurement and Mathematics**
  - a. Units
  - b. *Uncertainty in Measurement*
  - c. Significant Figures
  - d. Scientific Notation
  - e. Data Analysis
  - f. Graphing Conventions
2. **Kinematics**
  - a. Linear Motion
    - i. Motion Graphs
  - b. Acceleration
    - i. Kinematics Equations
  - c. Free Fall
  - d. Throwing Upwards
3. **Vectors & Projectiles**
  - a. Drawing to Scale
  - b. Resultants
  - c. Components
  - d. *Adding Non-perpendicular Vectors*
  - e. *Relative Velocity in Two Dimensions*
  - f. Independence of Vectors
  - g. Horizontal Projectiles
  - h. Angled Projectiles
4. **Forces & Motion**
  - a. Statics (Forces)
  - b. Newton's Three Laws of Motion (Dynamics)
  - c. Free Body Diagram
  - d. Every Day Forces
    - i. Friction
    - ii. Weight
    - iii. Normal
    - iv. Net Force
  - e. Inclined Planes
  - f. Riding an Elevator
  - g. *Air Resistance*
  - h. *Atwood Machines (blocks & pulleys)*
  - i. *Multi-tension Problems*
5. **Universal Gravitation, Circular Motion, Kepler's Laws**
  - a. Law of Gravitation
  - b. *Determining the Value of  $g$*
  - c. Uniform Circular Motion
    - i. Average Speed
    - ii. Centripetal Acceleration
    - iii. Centripetal Force
  - d. *Torque*
  - e. *Kepler's Laws of Planetary Motion*
6. **Momentum**
  - a. Momentum
  - b. Impulse
  - c. Conservation of Momentum
  - d. Collisions
  - e. *Angular Momentum*
7. **Energy**
  - a. Work
  - b. Power
  - c. Potential Energy
  - d. Kinetic Energy
  - e. Internal Energy
  - f. Conservation of Energy
  - g. Work Energy Theorem
  - h. *Energy in Collisions*
  - i. Simple Harmonic Motion
    - i. Spring
    - ii. Pendulum
    - iii. *Period of Spring & Pendulum*
  - j. *Efficiency*
8. **Thermal Energy**
  - a. *Thermal Properties*
    - i. *Temperature*
    - ii. *Heat Transfer*
    - iii. *Specific and Latent Heat*
  - b. *Laws of Thermodynamics*
    - i. *First and Second Laws*
    - ii. *Internal Energy*
    - iii. *Entropy*
    - iv. *Heat Engine Efficiency*
  - c. *Ideal Gas Laws*
9. **Electrostatics**
  - a. Electrostatics
    - i. Transfer of Charge
    - ii. Law of Conservation of Charge
    - iii. Coulomb's Law
  - b. Electric Fields
    - i. Drawing Electric Fields
    - ii. Charged Particles in Electric Fields
    - iii. *Electric Field of Point Charge*
    - iv. *Adding Electric Field as Vectors*
  - c. Electrical Potential Energy
  - d. *Potential Difference of Parallel Plates*
  - e. *Capacitance*
  - f. Electronvolt
10. **Electric Circuits**
  - a. Current
  - b. Circuit Schematics
  - c. Resistors
  - d. Ohm's Law
  - e. Electrical Power and Energy
  - f. Series and Parallel Circuits
  - g. Junction Rule
  - h. *Combination Circuits*
11. **Magnetism**
  - a. *Magnetic Poles*
  - b. *Magnetic Fields*
  - c. *Electromagnetism*
  - d. *Hand Rules*
  - e. *Magnetic Force on a Current*
  - f. *Magnetic Force on a Charge*
  - g. *Electromagnetic Induction*
  - h. *Motors, Generators, Transformers*
12. **Waves**
  - a. Types of Waves
  - b. Properties of Waves
  - c. Frequency and Period
  - d. Wave Speed
  - e. Superposition
  - f. Standing Waves
  - g. Resonance
  - h. Doppler Effect
  - i. *Polarization*
  - j. Single-slit Diffraction
  - k. Double-slit Interference
  - l. *Determining Wavelength using Double-slit Diffraction*
13. **Reflection & Refraction**
  - a. Law of Reflection
  - b. Index of Refraction
  - c. Snell's Law
  - d. Ray Optics
    - i. Image Formation
    - ii. Plane Mirrors
    - iii. *Curved Mirrors*
    - iv. *Lenses*
    - v. *Calculating Image Properties*
    - vi. *Ray Diagrams*
  - e. Critical Angle
14. **Modern Physics**
  - a. Dual Nature of Light
    - i. Photons
    - ii. Photoelectric Effect
    - iii. Energy of a Photon
    - iv. *Work function*
  - b. *de Broglie Wavelength*
  - c. Atomic
    - i. Rutherford and Bohr Models
    - ii. Atomic Energy Levels
    - iii. Atomic Spectra
  - d. Nuclear and Particle Physics
    - i. Universal Mass Units
    - ii. Mass Defect and Binding Energy
    - iii. The Standard Model
    - iv. Fundamental Particles
  - e. Relativity
    - i. Mass-Energy Equivalence
    - ii. *Special Relativity*

